DOCUMENT RESUME

ED 251 454 SP 025 535

AUTHOR Peck, Robert F.; And Others

TITLE The Interplay of Teacher and Student Characteristics that Affect Student Learning, Attitudes, and Coping Skills. Final Report of the Teaching-Learning Interaction Study. Volumes I-III.

INSTITUTION Texas Univ., Austin. Research and Development Center for Teacher Education.

SPONS AGENCY National Inst. of Education (ED), Washington, DC.

PUB DATE Oct 82

GRANT NIE-G-80-0116

NOTE 1,140p.

PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF09/PC47 Plus Postage.

DESCRIPTORS Academic Achievement; Classroom Techniques; Educational Environment; Elementary Education; Self Esteem; Socioeconomic Status; *Student Attitudes; *Student Behavior; *Student Characteristics; Student Evaluation of Teacher Performance; Student Needs; Student Reaction; *Teacher Behavior; Teacher Characteristics; Teacher Effectiveness; *Teacher Student Relationship; Teaching Styles; Time on Task

IDENTIFIERS *Teaching Learning Interaction Study

ABSTRACT

The Teaching-Learning Interaction Study tested the separate and interactive effects of teacher and student entry characteristics on their subsequent classroom behavior, and the effect of that behavior on students' regressed gain, over a school year, in achievement, attitudes toward school, self-esteem, and coping skills. Fifty-three tri-ethnic sixth-grade classes, comprising about 1,500 students, were studied the first year, and 43 classes of about 1,200 new students were studied in the next year. A second replication sample of 27 fourth to seventh grade classes, with about 700 students, was studied in Daviess County, Kentucky. Findings included: (1) Teacher age and experience showed either no relationship or a negative relationship to the measures of teaching effectiveness; (2) Teachers' self-rated personal traits did not predict teacher or student classroom behavior; (3) Student socioeconomic status (SES), ethnicity, and pre-test status showed substantial effects on student outcomes; (4) Observer-rated teacher behavior had strong effects on students' evaluation of the teacher's impact on them; (5) Teacher behavior showed effects on student time-on-task behavior and outcomes; and (6) A given kind of teaching behavior had different effects on different kinds of students, especially very low-achieving, low SES, minority students, or high-achieving, high status students. Findings suggest that particular sub-groups of students need to be looked at afresh each year, and their responsiveness to instruction alertly monitored. (Author/JD)

THE INTERPLAY OF TEACHER AND STUDENT CHARACTERISTICS THAT AFFECT STUDENT LEARNING, ATTITUDES, AND COPING SKILLS

Final Report of the Teaching-Learning Interaction Study

(TLIS)

Volume I

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
O. H. Bown

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

BEST COPY AVAILABLE

The project presented or reported herein was performed pursuant to a grant from the National Institute of Education, Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the National Institue of Education should be inferred.

THE INTERPLAY OF TEACHER AND STUDENT CHARACTERISTICS THAT AFFECT STUDENT LEARNING, ATTITUDES, AND COPING SKILLS

Final Report of the Teaching-Learning Interaction Study (TLIS)

Volume I

Robert F. Peck, Principal Investigator
with
Ronald B. Fox
Donald J. Veldman
Glen C. Payne
M. Guadalupe Cisneros-Solis

The Research and Development Center for Teacher Education
The University of Texas at Austin
October 1982

This is the final report on a study supported in part by the National Institute of Education ~~Contract NE-C-00-3-0066~~. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

Please do not quote or cite this report without the written permission of the project director.

TABLE OF CONTENTS

Volume I

Introductory materials i
  Table of Contents i
  Table of Figures xxxiii
  Acknowledgements lxi

CHAPTER I -- Rationale I-1
  Overview I-1
    Conceptual Design and Instrumentation I-8
  The Propositions of the Study I-11
  Figure I-1: Interconnections of Teacher and Student Factors that Affect Student Progress I-29

CHAPTER II -- The Research Sample and the Feedback Procedures . II-1
  The Samples II-1
  Austin, Texas II-2
  Major Differences Between the Two Samples of Students in Austin Years I and II II-9
  Daviess County, Kentucky II-11
  Feedback to Teachers II-13
  Examples of Questions from Teachers II-15
  Teacher Feedback -- Austin, Texas II-16
  Teacher Feedback -- Daviess County, Kentucky II-20
  Tables II-1 through II-10 . . . . II-21

CHAPTER III -- Instrumentation III-1
  Instrument Search III-1
  Figure 1: Goals of Education III-3
  Instruments and Variables III-5
    Student Measures III-6
      Student's ID Number III-6
      Student Biographical Form III-6
      Student Attendance Form III-6
    Figure 2: TLI Instruments Classified by Skill III-7
    Figure 3: TLI Instrumentation Design III-9
    Figure 4: Titles, Abbreviations and Administration Periods of Instruments III-11

Student Measures (Con't) III-13
  School Sentiment Index III-13
  Piers-Harris Children's Self-Concept/Student Self-Description III-13
  Student Evaluation of Teaching III-13
  Student Sentence Completion III-13
  Behavior Rating Scale III-14
  How This Class Makes Me Feel III-14
  Student Description III-14
  Comprehensive Tests of Basic Skills III-14
  Gates-MacGinitie Reading Tests III-14
  Unit Reading Tests III-15
Teacher Measures III-15
  Teacher Biographical Form III-15
  Class Checklist III-15
  Concerns Questionnaire III-15
  Adjective Self-Description III-16
  Teacher Reaction Form III-16
  Teacher Needs Survey III-16
Observation Measures III-16
  Classroom Organization Record III-17
  Glossary (To be Used with Classroom Observation Record) III-19
  Classroom Observation Report Form III-27
  Classroom Observation System/Behavior Observation System III-27
  Summary of the 14 Categories in the Observational System III-27
  TLIS Interviews III-28
Student Instrument Description III-29
  Student Biographical Form III-29
    Computing SES III-30
    Occupation Scale III-31
  Student Attendance Form III-32

School Sentiment Index (SSI) III-32
Scoring and Psychometric Properties III-33
Interpretation of the SSI III-34
Tables III - SSI-1 through SSI-5 . . . . III-35
The Piers-Harris Children's Self-Concept Scale (P-H) and The Student Self-Description (SSD) III-55
Scoring and Psychometric Properties III-56
Interpretation of Piers-Harris Children's Self-Concept Scale/Student Self-Description . . III-57
Tables III - SE-1 through SE-6 . . . . III-59
Student Description (SD) III-77
Tables III - SD-1 through SD-6 . . . . III-79
Student Sentence Complestion (SSC) III-93
Interpretation of the SSC III-95
Tables III - SSCA-1 through SSCA-6 . . . . III-97
Tables III - SSCC-1 through SSCC-6 . . . . III-115
Behavior Rating Scale (BRS) III-135
Scoring Procedures III-136
Self-rating III-136
Other-rating III-137
Reliability III-137
Validity III-137
Self-Rated Competence (BRS-S) III-138
Tables III - BRSO-1 through BRSO-6 . . . . III-139
Tables III - BRSS-1 through BRSS-5 . . . . III-155
How This Class Makes Me Feel (HOWCL) III-169
Reliability III-170
Consequent Validity III-170
Interpretation of How This Class Makes Me Feel . III-172
Table III HOWCL-1 . . . . III-173
Comprehensive Tests of Basic Skills (CTBS) III-175
Interpretation of the Comprehensive Test of Basic Skills III-177
Sample Items -- CTBS, Level 2 -- Language Arts . III-177

Comprehensive Tests of Basic Skills (CTBS) (Con't) . III-177
  Sample Items -- CTBS, Level 2 -- Mathematics . . III-178
  CTBS, Level 3 . . . . III-179
  Social Studies, Level 3 . . . . III-179
Gates-MacGinitie Reading Tests (Survey D, Form 1) . . III-181
  Speed and Accuracy Test III-181
  Vocabulary Test III-182
  Comprehension Test III-182
  Interpretation of the Gates-MacGinitie III-184
  Tables III - ACH-1 through ACH-6 . . . . III-185
Unit Reading Tests III-203
  Scoring and Psychometric Properties III-204
Teacher Instrument Descriptions III-205
  Teacher Biographical Form III-205
  Class Roster III-206
  Student Attendance Form III-207
  Class Checklist III-207
  Concerns Questionnaire III-208
  Student Time-On-Task III-209
    Reliability III-210
    Validity III-210
    Tables III - TOT-1 through TOT-2 . . . . III-211
  Student Evaluation of Teaching III-217
    Scoring and Psychometric Properties III-218
    Interpretation of SET III-220
    Bias III-221
    Validity III-221
    Relations to Teacher Behavior III-226
    Tables III - SET-1 through SET-5 . . . . III-229

CHAPTER IV -- Methodology IV-1
  Regression Analysis IV-1
  Questions IV-2
  Assumptions IV-4

Assumptions (Con't) IV-4
Change Measurement IV-7
Classroom Analysis IV-9
1. Analysis at the individual or general level IV-9
2. Between-Class Analysis IV-10
3. Pooled-Within-Class or Relative-Standing Analysis IV-12
Within- and Between-Class Analyses: Distinctions and Trial Interpretations IV-13
Difficulties of Interpretation IV-16
Table IV-1: Correspondence of Classroom Models and Statistical Findings IV-19
Table IV-2: Significance/Interpretation IV-21
Difficulties of Interpretation (Con't) IV-23
Instance 1 . . . . IV-23
Instance 2 . . . . IV-24
Instance 3 . . . . IV-25
Instance 4 . . . . IV-27
Instance 5 . . . . IV-29
Graphing and Interpreting Results IV-31
Demographic Differences in the Outcome IV-33
Slope Effects IV-35
Main Effects IV-35
Interaction Effects IV-35
Between-Class Effects IV-36
Class and Student Characteristics Predicting Outcome . . . IV-36
Individual Differences Within-Class IV-37
Pre-test Effects IV-37
Main Predictor Effects IV-38
Graphing the Best-Fit Models IV-39
Class Composition Differences as Predictor IV-40
Teacher Process Predicting Class Outcome IV-41
Correct Variance Base IV-41

Classroom Characteristics and Teacher Effects IV-43
Pupil Within-Class and Teacher Effects IV-44
Pre-test Interactions IV-45
Treatment of Ethnicity IV-45
Convenience Screening IV-46
Appropriate Components of Variance IV-47
A Summary of the Analyses Used to Test the Propositions of the Study IV-49
Specific Propositions IV-49
General Propositions IV-51
Figures IV-1 through IV-7 . . . . IV-53

TABLE OF CONTENTS

Volume II

Introductory materials i
- Table of Contents i
- Table of Figures . . . .

CHAPTER V -- Teachers V-1
- Research Design V-1
- Research Measures V-2
- Presage Measures V-4
  - Demographic Data on Teachers V-4
  - Teacher Personality Traits V-6
- Teacher Process Measures V-8
  - Classroom Ratings of Teachers V-8
    - Kindly-Understanding (KU) V-9
    - Stimulating-Inventive (SI) V-10
    - Systematic-Organized (SO) V-11
  - Student Evaluation of Teachers V-12
    - Bias V-14
    - Validity V-16
    - Relations to Teacher Behavior V-20
  - How This Class Makes Me Feel V-21
    - Consequent Validity V-21
- Effects of Teacher Age and Experience V-23
  - Teacher's Effect on Student Time-On-Task V-26
- Consistency and Stability of Teacher Behavior V-27
- Effects of Teacher Behavior on Class V-32
  - Teacher and Student Outcomes V-32
- Teacher and Teacher-By-Pupil Effects on Change in Achievement V-33
  - Austin I V-33
  - Austin II V-35
  - Kentucky V-36
- Teacher and Teacher-By-Pupil Effects on Change in Self-Esteem V-41
  - Austin I V-41

Teacher and Teacher-By-Pupil Effects on Change in Self-Esteem (Con't) V-41
    Austin II V-45
    Kentucky V-47
Teacher and Teacher-By-Pupil Effects on Changes in Attitude Toward School V-49
    Austin I V-49
    Austin II V-52
    Kentucky V-56
Teacher and Teacher-By-Pupil Effects on Change in General Attitude V-58
    Austin I V-58
    Austin II V-60
    Kentucky V-60
Teacher and Teacher-By-Pupil Effects on Change in Self-Described General Coping Skill V-61
    Austin I V-61
    Austin II V-63
    Kentucky V-65
Teacher and Teacher-By-Pupil Effects on Change in Peer-Related Academic Coping Skill V-68
    Austin II V-68

CHAPTER VI -- Types of Teachers, Types of Pupils, and Their Interacting Effects on Outcomes of Schooling VI-1
  Types of Pupils VI-2
    Type A. Poor Achievers with Positive Attitudes . . . VI-3
    Type B. Poor Achievers with Negative Attitudes . . . VI-3
    Type C. High Achievers with Positive Attitudes . . . VI-3
    Type D. High Achievers with Negative Attitudes . . . VI-3
    Table VI-1: Group Mean Profiles of Four Pupil Types VI-5
    Table VI-2: Comparisons of Pupil Type Groups VI-7
  Types of Teachers VI-9
    Table VI-3: Group Mean Profiles of Three Teacher Types VI-11

Teacher Type/Pupil Type Interactions VI-13

Table VI-4: Distribution of Pupil Types Among Teacher Types VI-15

Effects on Pupil Outcomes VI-17

Table VI-5: Pre-Post Changes of Pupil and Teacher Types VI-19

Table VI-6: Adjusted Post-Test Levels of Pupil and Teacher Types VI-19

Table VI-7: Pupil Type/Teacher Type Interaction on P-H VI-23

Table VI-8: Pupil Type/Teacher Type Interaction on SSI-AS VI-25

Replication with Austin Year II Pupils VI-27

Table VI-9: Group Mean Profiles from Year II Typing of Pupils VI-28

Table VI-10: Comparisons of Pupil Type Groups . . . VI-29

Replication with Austin Year II Teachers VI-31

Table VI-11: Group Mean Profiles from Year II Typing of Teachers VI-31

Table VI-12: Type Assignments in Year I Versus Year II VI-32

Table VI-13: Distribution of Pupil Types Among Teacher Types VI-33

Table VI-14: Pre-Post Changes of Pupil and Teacher Types VI-35

Table VI-15: Adjusted Post-Test Levels of Pupil and Teacher Types VI-37

Replication with Kentucky Sample VI-39

Table VI-16: Group Mean Pupil Profiles from Kentucky Sample VI-39

Table VI-17: Group Mean Profile of Teacher Types . . VI-43

Table VI-18: Distribution of Pupil Types Among Teacher Types VI-43

Table VI-19: Pre-Post Changes of Pupil and Teacher Types VI-45

Table VI-20: Adjusted Post-Test Levels of Pupil and Teacher Types VI-45

CHAPTER VII -- The Effects of Student Characteristics on Learning Outcomes VII-1

Learning Outcome: Academic Achievement as Measured by the Comprehensive Test of Basic Skills (CTBS) and Gates-MacGinitie Reading Test (GMG) VII-1

The Relationship Between Initial Achievement and Other Student Characteristics at the Beginning of the School Year VII-1

The Effects of Student Characteristics on Regressed Change in Achievement VII-3

The Effects of Coping on Regressed Change in Achievement VII-6

The Effects of Attitude Toward School and Live on Regressed Change in Achievement VII-9

The Effects of Self-Esteem on Regressed Change in Achievement VII-10

The Effects of Classroom Behavior on Regressed Gain in Achievement VII-12

Time-On-Task VII-12

Academic Coping VII-13

Social-Emotional Coping VII-13

Summary VII-14

Tables VII - ACH-1 through ACH-3 . . . . VII-19

Graphs VII - ACH-1 through ACH-13 . . . . VII-25

Learning Outcome: Peer-Related Measure of Academic Coping Behavior as Measured by the Behavior Rating Scale -- Peer-Rated (BRS-OR) VII-51

The Relationship Between Initial Peer-Rated Coping Skill and Other Initial Characteristics VII-51

The Effects of Student Characteristics on Regressed Change in Peer-Rated Academic Coping VII-42

The Effects of Achievement on Peer-Rated Academic Coping VII-52

The Effects of Other Coping Measures on Peer-Rated Academic Coping VII-53

The Effects of Self-Esteem and Other Attitude Measures VII-53

The Effects of Time-On-Task VII-54

The Effects of Observed Coping Behavior VII-55

Learning Outcome: Peer-Related Measure of Academic Coping Behavior as Measured by the Behavior Rating Scale -- Peer-Rated (BRS-OR) (Con't) VII-55

Tables P-RA COP-1 through P-RA COP-3 . . . . VII-57

Graphs P-RA COP-1 through P-RA COP-5 . . . . VII-63

Learning Outcome: Self-Rated Academic Coping as Assessed by the Behavior Rating Scale -- Self-Rated (BRS-SR) . VII-73

The Relationship Between Initial Peer-Rated Academic Coping and Other Student Characteristics as the Beginning of the Year VII-73

The Effects of Student Characteristics on Regressed Change in Self-Rated Academic Coping VII-74

The Effects of Achievement on Self-Rated Academic Coping VII-74

The Effects of Other Coping Measures on Self-Rated Academic Coping VII-75

The Effects of Self-Esteem and Other Attitudes on Self-Perceived Academic Coping VII-75

The Effects of Classroom Behavior on Regressed Change on Self-Rated Academic Coping VII-76

The Effects of Time-On-Task VII-76

The Effects of Observed Coping Behavior VII-76

Summary VII-78

Tables A COP: S-R-1 through A COP: S-R-3 . . . . . VII-79

Graphs A COP: S-R-1 through A COP: S-R-2 . . . . . VII-85

Learning Outcome: Self-Rated General Coping Skills -- Student Sentence Completion VII-89

The Relationship Between Initial General Coping: Self-Report and Other Pupil Characteristics at the Beginning of the School Year VII-89

The Effects of Student Characteristics on Regressed Change in General Coping: Self-Report VII-90

The Effects of Achievement on General Coping: Self-Report VII-90

The Effects of Peer-Rated Academic Coping in Regressed Change on Self-Report General Coping VII-91

The Effects of Self-Rated Academic Coping on Self-Perceived General Coping VII-92

15

Learning Outcome: Self-Rated General Coping Skills -- Student Sentence Completion (Con't) VII-92
- The Effects of Attitude Toward School on General Coping: Self-Report VII-92
- The Effects of Attitude Toward Life in General on General Coping: Self-Report VII-93
- The Effects of Self-Esteem on Regressed Change on General Coping: Self-Report VII-95
- The Effects of Classroom Behavior on Self-Reported and General Coping VII-95
  - The Effects of Time-On-Task (TOT) VII-96
  - The Effects of Academic and Social-Emotional Coping VII-97
  - The Effects of COR-Pupil: Students' Observed Orderly Classroom Behavior VII-98
- Summary: Replication of Findings VII-98
- Tables G COP: S-R-1 through G COP S-R-3 . . . . . . VII-101
- Graphs G COP: S-R-1 through G COP S-R-9 . . . . . . VII-107

Learning Outcome: General Attitude Toward Life as Measured by the Student Sentence Completion-Attitude Scale (SSC-A) VII-125
- The Relationship Between General Attitude Toward Life and Other Pupil Characteristics at the Beginning of the Year VII-125
- The Effects of Student Characteristics in Regressed Change on Attitude: General VII-126
- The Effects of Achievement on General Attitude . . . VII-126
- The Effects of Academic Coping on Attitude in General VII-126
- The Effects of Self-Rated Academic Coping on Regressed Change in General Attitude VII-128
- The Effects of Self-Perceived General Coping Skills on Regressed Gain in General Attitude VII-129
- The Effects of Students' Attitude Toward School on Regressed Change on Attitude in General VII-129
- The Effects of Self-Esteem on Regressed Gain in General Attitude VII-131

Learning Outcome: General Attitude Toward Life as Measured by the Student Sentence Completion-Attitude Scale (SSC-A) (Con't) VII-131

The Effects of Classroom Behavior on Regressed Change in General Attitude VII-132

Effects of Time-On-Task VII-132

The Effects of Academic Coping VII-133

The Effects of Social-Emotional Coping VII-135

The Effects of Students' Organized Classroom Behavior VII-136

Summary: Replication of Results VII-136

Tables VII - GATT-1 through GATT-3 . . . . VII-137

Graphs VII - GATT-1 through GATT-22 . . . . VII-143

Learning Outcome: Self-Esteem as Measured by the Piers-Harris Self-Concept and the Student Self-Description VII-187

The Relationship Between Initial Attitude Toward School and Other Student Characteristics at the Beginning of the Year VII-187

The Effects of Student Characteristics on Regressed Change in Attitude Toward School VII-188

The Effects of Achievement on Attitude: School . . . VII-188

The Effects of Coping Skill on Regressed Change in Attitude: School VII-189

Self-Rated and Peer-Rated Coping VII-189

Self-Rated General Coping VII-190

The Effects of Attitude Toward Life and Self-Esteem on Regressed Change in Attitude Toward School . VII-191

The Effects of Classroom Behavior on Regressed Change in Attitude Toward School VII-192

Effects of Time-On-Task VII-192

The Effects of Academic Coping VII-193

The Effects of Social-Emotional Coping VII-194

Effects of Work-Oriented Behavior: COR-Pupil . VII-196

SSI Criterion: Summary of Replications VII-196

Tables VII - SA-1 through SA-3 . . . . VII-199

Graphs VII - SA-1 through SA-15 . . . . VII-205

Learning Outcome: Self-Esteem as Measured by the Piers-Harris Self-Concept and the Student Self-Discussion VII-235

The Relationship Between Initial Self-Esteem and Other Student Characteristics at the Student Self-Discussion VII-235

The Effects of Student Characteristics on Regressed Change in Self-Esteem VII-236

The Effects of Achievement on Regressed Change in Self-Esteem VII-236

The Effects of Peer-Rated Academic Coping VII-238

The Effects of Self-Rated Academic Coping VII-239

The Effects of Self-Reported, General Coping Ability on Self-Esteem VII-240

The Effects of Attitude Toward School on Regressed Change in Self-Esteem VII-241

The Effects of Attitude in General on Regressed Change in Self-Esteem VII-242

The Effects of Time-On-Task on Regressed Change in Self-Esteem VII-242

The Effects of Academic Coping Behavior on Regressed Change in Self-Esteem VII-243

The Effects of Social-Emotional Coping and Class Behavior (COR-Pupil) on Regressed Gain in Self-Esteem VII-244

Summary: Replication of Results VII-245

Tables VII - SE-1 through SE-3 . . . . VII-247

Graphs VII - SE-1 through SE-8 . . . . VII-253

Some Summary Observations VII-269

TABLE OF CONTENTS

Volume III

Introductory materials i

  Table of Contents i

  Table of Figures . . . .

CHAPTER VIII -- Findings from the Study VIII-1

  What the Findings Say About Each Proposition VIII-1

  Figure VIII-1: The Findings on the Interconnctions of Teacher and Student Characteristics, Classroom Behavior and Student Outcome VIII-27

  Propositions VIII-29

APPENDIX A -- R & D Report No. 2372

  An Evaluation of Instruments Measuring Cognitive, Affective and Coping Skills of School-Age Children . A-1

    Title page A-1

    Skill variances A-5

    Instruments Measuring Cognitive Skills A-7

    Instruments Measuring Affective Skills A-15

    Instruments Measuring Miscellaneous Skills A-23

    References for Student Search A-31

    Miscellaneous A-35

    Affective Domain A-39

    Overall Listing of All Instruments Surveyed A-49

APPENDIX B -- R & D Report No. 5058

  A Simulation Study of Four Metnods Used to Analyze Change B-1

    Title page B-1

    Abstract B-3

    Text B-5

    References B-49

APPENDIX C -- References C-1
    Publications from the Teaching-Learning Interaction Study C-3
    References C-11

APPENDIX D -- Instuments D-1
    Table of Contents D-3
    Student Measures D-5
        Student Biographical Form D-5
        Student Sentence Completion D-9
        Piers-Harris Children's Self-Concept Scale D-21
            (Student Self-Description)
        How This Class Makes Me Feel D-27
        Behavior Rating Scale D-29
        School Sentiment Index D-33
        Student Evaluation of Teaching D-41
    Teacher Measures D-43
        Teacher Biographical Form D-43
        Adjective Self-Description D-45
        Student Description D-47
        Concerns Questionnaire D-49
        Teacher Reaction Form D-55
        Class Checklist D-57

APPENDIX E -- Annotated Bibliographies E-1

APPENDIX F -- R & D Report No. 2380

    The Impact of Teacher and Student Characteristics
        Student Self-Concept, Attitudes Toward School,
        Achievement, and Coping Skills: A Review of
        Research F-1
        Title page F-1
        Text F-3
        References F-41

ABSTRACT (following page F-52)

TABLE OF FIGURES

Volume I

CHAPTER I -- Rationale I-1

Figure I-1: Interconnections of Teacher and Student Factors that Affect Student Progress I-29

CHAPTER II -- The Research Sample and the Feedback Procedures . II-1

Table II-1: Number of Teachers in Each School II-21

Table II-2: Teacher Characteristics: Sex and Ethnicity . . II-23

Table II-3: Teacher Characteristics: Age II-23

Table II-4: Teacher Characteristics: Educational Degrees . II-25

Table II-5: Teacher Characteristics: Years of Teaching Experience II-25

Table II-6: Number of Pupils in Schools II-27

Table II-7: Pupil Characteristics: Sex and Ethnicity . . . II-29

Table II-8: Pupil Characteristics: SES and Ethnicity . . . II-31

Table II-9: Pupil Characteristics: Ethnicities in Each School II-33

Table II-10: Pupil Characteristics: SES in Each School . . II-35

CHAPTER III -- Instrumentation III-1

Figure 1: Goals of Education III-3

Figure 2: TLI Instruments Classified by Skill III-7

Figure 3: TLI Instrumentation Design III-9

Figure 4: Titles, Abbreviations and Administration Periods of Instruments III-11

Instrument: (COR-SO), Pupil Classroom Behavior (COR-P) . . III-17

Glossary: To be used with COR III-19

Summary of the 14 Categories in the Observational System For the Analysis of Classroom Instruction III-27

Table III - SSI-1: Validity Data for Student Attitudes Toward School (SSI) III-35

Table III - SSI-2: Consequent Validity: Student Characteristics on Regressed Change in Attitude: School III-37

Table III - SSI-3: Consequent Validity: Classroom Behavior on Regressed Change in Attitude: School III-39

TABLE OF FIGURES
VOLUME I
Page 2

Table III - SSI-4: Consequent Validity: Teacher Process Predicting Regressed Change in Attitude Toward School (SSI) III-41

Table III - SSI-5: Predicting Validity: Attitude: School (SSI) Predicting Regressed Change on Student Measures . III-51

Table III - SSI-6: Validity Data for Student Attitudes Toward School (SSI) III-53

Table III - SE-1: Validity Data for Self-Esteem (PH & SSD). III-59

Table III - SE-2: Consequent Validity: Student Characteristics on Regressed Change in Self-Esteem . . III-61

Table III - SE-3: Consequent Validity: Classroom Behavior on Self-Esteem III-63

Table III - SE-4: Consequent Validity: Teacher Process Predicting Regressed Change on Self-Esteem III-65

Table III - SE-5: Predictive Validity: Self-Esteem Predicting Regressed Change on Student Measures III-71

Table III - SE-6: Validity Data for Self-Esteem (PH & SSD). III-75

Table III - SD-1: Correlations of (Teacher-Rated) Coping Skills with Student Time-on-Task (Within Class) III-79

Table III - SD-2: Consequent Validity: Student Predictors of Academic Coping Within Class III-81

Table III - SD-3: Consequent Validity: Student Predictors of Social-Emotional Coping Within Class III-83

Table III - SD-4: Predictive Validity: Academic Coping (Special Study Students) Predicting Regressed Change on Student Measures III-85

Table III - SD-5: Predictive Validity: Social-Emotional Coping Predicting Regressed Change on Student Measures. III-87

Table III - SD-6: Validity Data for Teacher Ratings of Students' Academic Coping and Social-Emotional Coping (Student Description) III-91

Table III - SSCA-1: Validity Data for Student Attitude . . III-97

Table III - SSCA-2: Consequent Validity: Student Characteristics on Regressed Change in Attitude: General III-99

Table III - SSCA-3: Consequent Validity: Classroom Behavior on Regressed Change in Attitude: General III-103

Table III - SSCA-4: Consequent Validity: Teacher Process Predicting Regressed Change in Attitude: General . . . III-105

TABLE OF FIGURES
VOLUME I
Page 3

Table III - SSCA-5: Predictive Validity: Attitude: General (SSC-A) Predicting Regressed Change on Student Measures III-111

Table III - SSCA-6: Validity Data for Student Attitude: General (SSC-A) III-113

Table III - SSCC-1: Validity Data for Student Coping: General (SSC-C) III-115

Table III - SSCC-2: Consequent Validity: Student Characteristics on Regressed Change in General Coping: Self-Report III-117

Table III - SSCC-3: Consequent Validity: Classroom Behavior on Regressed Change in General Coping: Self-Report . . III-121

Table III - SSCC-4: Consequent Validity: Teacher Process Predicting Regressed Change in General Coping (SSC-C) . III-123

Table III - SSCC-5: Predictive Validity: General Coping: Self-Report (SSC-C) Predicting Regressed Change on Student Measures III-129

Table III - SSCC-6: Validity Data for Student Coping: General (SSC-C) III-133

Table III - BRSO-1: Validity Data for Academic Coping: Peer Rated (BRS-OR) III-139

Table III - BRSO-2: Consequent Validity: Student Characteristics on Regressed Change in Academic Coping: Peer Rating III-141

Table III - BRSO-3: Consequent Validity: Classroom Behavior on Regressed Change in Academic Coping: Peer Rated . . III-145

Table III - BRSO-4: Consequent Validity: Teacher Process Predicting Regressed Change on Classroom Coping - Other Rated (BRS-OR) III-147

Table III - BRSO-5: Predictive Validity: Academic Coping (Peer-Rated) Predicting Regressed Change on Student Measures III-149

Table III - BRSO-6: Validity Data for Academic Coping: Peer Rated (BRS-OR) III-153

Table III - BRSS-1: Validity Data for Academic Coping: Self-Rated (BRS-SR) III-155

Table III - BRSS-2: Consequent Validity: Student Characteristics on Regressed Change in Academic Coping: Self-Rating III-157

Table III - BRSS-3: Consequent Validity: Classroom Behavior on Regressed Change on Academic Coping: Self-Rated . . III-161

Table III - BRSS-4: Predictive Validity: Academic Coping Self-Rated (BRS-SR) Predicting Regressed Change on Student Measures III-163

Table III - BRSS-5: Validity Data for Academic Coping: Self-Rated (BRS-SR) III-167

Table III - ACH-1: Validity Data for Achievement III-185

Table III - ACH-2: Consequent Validity: Student Characteristics on Regressed Change in Achievement . . III-187

Table III - ACH-3: Consequent Validity: Classroom Behavior on Regressed Change on Achievement III-191

Table III - ACH-4: Consequent Validity: Teacher Process Affecting Regressed Change on Achievement III-193

Table III - ACH-5: Predictive Validity: Achievement Pre-test Predicting Pupil Regressed Change III-197

Table III - ACH-6: Validity Data for Achievement III-201

Table III - TOT-1: Consequent Validity: Student Predictors of Time-on-Task (Within Class) III-211

Table III - TOT-2: Predictive Validity: Student Time On Task (TOT) Predicting Regressed Change on Student Measures III-213

Table III - SET-1: Set Correlations III-229

Table III - SET-2: Consequent Validity: Effects of Teacher Behavior on Student Evaluation of Teaching III-231

Table III - SET-3: Predictive Validity: Student Evaluation of Teachers as a Predictor of Change Over the Year in Student Measures III-233

Table III - SET-4: Consequent Validity: Predictors of Set-Post CLM, Between Class III-235

Table III - SET-5: Validity Data For Student Evaluation of Teacher: A Teacher Measure (Class Means) III-239

CHAPTER IV -- Methodology IV-1

Table IV-1: Correspondence of Classroom Models and Statistical Findings IV-19

Table IV-2: Significance and Interpretation IV-21

A Summary of the Analyses Used to Test the Propositions of the Study IV-49

TABLE OF FIGURES
VOLUME I
Page 5

CHAPTER IV -- Methodology (Con't) IV-49
Figure 1 . . . . IV-53
Figure 2 . . . . IV-55
Figure 3 . . . . IV-57
Figure 4 . . . . IV-57
Figure 5 . . . . IV-57
Figure 6 . . . . IV-57
Figure 7 . . . . IV-59

TABLE OF FIGURES

Volume II

CHAPTER V -- Teachers V-1

Table 1: Correlations Between COR Factor Scores and SET (Post) Scores Within the Same Year V-71

Table 2: Validity Data for How This Class Makes Me Feel (HOWCL): Austin II (Between) V-73

Table 3: Effects of Teacher Behavior and Student Gains on How-This-Class-Makes-Me-Feel Scores V-75

Table 4: Consistency of Teacher Behavior Across Three Dimensions (COR-KU, COR-SO, COR-SI) V-77

Figure 1: ACH (CT) Post vs. ACH (CT) Pre: Austin I . . V-81

Figure 2: ACH (CT) Post.Pre vs BRS-OR: Austin I . . . V-83

Figure 3: ACH (CT) Post.Pre vs SSC-C: Austin I V-85

Figure 4: ACH (CT) Post.Pre vs COR-KU: Austin I . . . V-87

Figure 5: ACH (GMG) Post.Pre vs COR-KU: Austin II . . V-89

Figure 6: ACH (GMG) Post vs ACH (GMG) Pre: Austin II . V-91

Figure 7: ACH (GMG) Post.Pre vs COR-SO: Austin II . . . V-93

Figure 8: ACH (GMG) Post.Pre vs BRS-SR: Austin II . . V-95

Figure 9: ACH (GMG) Post.Pre vs HOWCL: Austin II . . . V-97

Figure 10: ACH (GMG) Post.Pre vs HOWCL: Austin II . . . V-99

Figure 11: ACH (CT) Post vs ACH Pre: Kentucky V-101

Figure 12: ACH (CT) Post vs ACH (CT) Pre: Kentucky . . V-103

Figure 13: ACH (CT) Post vs ACH Pre: Kentucky V-105

Figure 14: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-107

Figure 15: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-109

Figure 16: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-111

Figure 17: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-113

Figure 18: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-115

Figure 19: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-117

Figure 20: ACH (CT) Post vs BRS-SR: Kentucky V-119

Figure 21: ACH (CT) Post vs BRS-SR: Kentucky V-121

Figure 22: ACH (CT) Post.Pre vs P-H: Kentucky V-123

Figure 23: ACH (CT) Post.Pre vs P-H: Kentucky V-125

Figure 24: P-H Post vs P-H Pre: Austin I V-127

CHAPTER V -- Teachers (Con't)

Figure 25: P-H Post.Pre vs SSI-Att: Austin I V-129
Figure 26: P-H Post.Pre vs SSI-Att: Austin I V-131
Figure 27: P-H Post.Pre vs SSC-A: Austin I V-133
Figure 28: P-H Post.Pre vs SSI-Att: Austin I V-135
Figure 29: P-H Post.Pre vs SSC-A: Austin I V-137
Figure 30: P-H Post.Pre vs SSC-C: Austin I V-139
Figure 31: P-H Post.Pre vs SSC-C: Austin I V-141
Figure 32: P-H Post.Pre vs SES: Austin I V-143
Figure 33: P-H Post.Pre vs SES: Austin I V-145
Figure 34: P-H Post.Pre vs SSC-A: Austin I V-147
Figure 35: SSD Post vs SSD Pre: Austin II V-149
Figure 36: SSD Reg Chnge vs GMG: Austin II V-151
Figure 37: SSD Reg Chnge vs SET: Austin II V-153
Figure 38: SSD Reg Chnge vs SSC-C: Austin II V-155
Figure 39: SSD Reg Chnge vs SSC-C: Austin II V-157
Figure 40: SSD Reg Chnge vs SSC-C: Austin II V-159
Figure 41: SSD Reg Chnge vs SSC-C: Austin II V-161
Figure 42: SSD Reg Chnge vs SES: Austin II V-163
Figure 43: SSD Reg Chnge vs SES: Austin II V-165
Figure 44: SSD Reg Chnge vs BRS-SR: Austin II V-167
Figure 45: P-H Post vs P-H Pre: Kentucky V-169
Figure 46: P-H Post.Pre vs BRS-SR: Kentucky V-171
Figure 47: P-H Post.Pre vs SSI: Kentucky V-173
Figure 48: P-H Post vs SSI: Kentucky V-175
Figure 49: P-H Post vs SSI: Kentucky V-177
Figure 50: P-H Post vs SSI: Kentucky V-179
Figure 51: SSI-Att Post.Pre vs COR-SI: Austin I V-181
Figure 52: SSI-Att Post.Pre vs P-H: Austin I V-183
Figure 53: SSI-Att Post.Pre vs P-H: Austin I V-185
Figure 54: SSI-Att Post.Pre vs P-H: Austin I V-187
Figure 55: SSI-Att Post.Pre vs SES: Austin I V-189
Figure 56: SSI-Att Post.Pre vs P-H: Austin I V-191

CHAPTER V -- Teachers (Con't)

Figure 57: SSI-Att Post.Pre vs SSC-A: Austin I V-193
Figure 58: SSI-Att Post.Pre vs SSC-C: Austin I V-195
Figure 59: SSI-Att Post.Pre vs SES: Austin I V-197
Figure 60: SSI-Att Post.Pre vs SSC-C: Austin II V-199
Figure 61: SSI-Att Post.Pre vs SET: Austin II V-201
Figure 62: SSI-Att Post.Pre vs SET: Austin II V-203
Figure 63: SSI-Att Post.Pre vs SSC-Att: Austin II . . . V-205
Figure 64: SSI-Att Post.Pre vs SSC-A: Austin II V-207
Figure 65: SSI-Att Post.Pre vs BRS-SR: Austin II . . . V-209
Figure 66: SSI-Att Post.Pre vs SET: Austin II V-211
Figure 67: SSI-Att Post vs SSI-Att Pre: Austin II . . . V-213
Figure 68: SSI-Att Post.Pre vs SSC-A: Austin II V-215
Figure 69: SSI-Att Post.Pre vs HOWCL: Austin II V-217
Figure 70: SSI-Att Post vs SSI-Att Pre: Austin II . . . V-219
Figure 71: SSI-Att Post.Pre vs SSC-A: Austin II V-221
Figure 72: SSI-Att Post.Pre vs SSC-C: Austin II V-223
Figure 73: SSI-Att Post.Pre vs BRS-OR: Austin II . . . V-225
Figure 74: SSI-Att Post vs SSD: Austin II V-227
Figure 75: SSI-Att Post.Pre vs HOWCL: Austin II V-229
Figure 76: SSI-Att Post.Pre vs SES: Austin II V-231
Figure 77: SSI-Att Post.Pre vs BRS-OR: Kentucky V-233
Figure 78: SSI-Att Post.Pre vs SET: Kentucky V-235
Figure 79: SSI-Att Post vs SSI-Att Pre: Kentucky . . . V-237
Figure 80: SSI-Att Post.Pre vs SSC-C: Kentucky V-239
Figure 81: SSI-Att Post.Pre vs SSC-Att: Kentucky . . . V-241
Figure 82: SSI-Att Post.Pre vs COR-SI: Austin I V-243
Figure 83: SSC-A Post vs SSC-A Pre: Asutin I V-245
Figure 84: SSC-A Post vs SSC-Att Pre: Austin I V-247
Figure 85: SSC-Att Post vs SSC-Att Pre: Austin I . . . V-249
Figure 86: SSC-A Post.Pre vs SES: Austin I V-251
Figure 87: SSC-A Post.Pre vs SES: Austin I V-253
Figure 88: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-255

CHAPTER V -- Teachers (Con't)

Figure 89: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-257
Figure 90: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-259
Figure 91: SSC-Att Post.Pre vs P-H: Austin I V-261
Figure 92: SSC-Att Post.Pre vs SES: Austin I V-263
Figure 93: SSC-Att Post.Pre vs SES: Austin I V-265
Figure 94: SSC-Att Post.Pre vs P-H: Austin I V-267
Figure 95: SSC-Att Post vs SSC-Att Pre: Kentucky . . . V-269
Figure 96: SSC-Att Post vs SSC-Att Pre: Kentucky . . . V-271
Figure 97: SSC-Att Post.Pre vs P-H: Kentucky V-273
Figure 98: SSC-Att Post.Pre vs SSI-Att: Kentucky . . . V-275
Figure 99: SSC-C Post.Pre vs ACH (CT): Austin I V-277
Figure 100: SSC-C Post.Pre vs SES: Austin I V-279
Figure 101: SSC-C Post.Pre vs ACH (CT): Austin I V-281
Figure 102: SSC-C Post.Pre vs SSC-Att: Austin II V-283
Figure 103: SSC-C Post.Pre vs SES: Austin II V-285
Figure 104: SSC-C Post.Pre vs SES: Austin II V-287
Figure 105: SSC-C Post.Pre vs HOWCL: Austin II V-289
Figure 106: SSC-C Post.Pre vs SET: Kentucky V-291
Figure 107: SSC-C Post.Pre vs ACH: Kentucky V-293
Figure 108: SSC-C Post.Pre vs ACH: Kentucky V-295
Figure 109: SSC-C Post.Pre vs ACH: Kentucky V-297
Figure 110: SSC-C Post vs P-H: Kentucky V-299
Figure 111: SSC-C Post vs SSC-C Pre: Kentucky V-301
Figure 112: SSC-C Post vs BRS-SR: Kentucky V-303
Figure 113: SSC-C Post vs BRS-SR: Kentucky V-305
Figure 114: SSC-C Post vs BRS-SR: Kentucky V-307
Figure 115: BRS-OR Reg Chnge vs SES: Austin II V-309
Figure 116: BRS-OR Reg Chnge vs GMG: Austin II V-311
Figure 117: BRS-OR Reg Chnge vs SES: Austin II V-313

CHAPTER VI -- Types of Teachers, Types of Pupils, and Their Interacting Effects on Outcomes of Schooling VI-1

Table 1: Group Mean Profiles of Four Pupil Types . . . VI-5

Table 2: Comparisons of Pupil Type Groups VI-7

Table 3: Group Mean Profiles of Three Teacher Types . VI-11

Table 4: Distribution of Pupil Types Among Teacher Types VI-15

Table 5: Pre-Post Changes of Pupil and Teacher Types . VI-19

Table 6: Adjusted Post-Test Levels of Pupil and Teacher Types VI-19

Table 7: Pupil Type/Teacher Type Interaction on P-H . VI-23

Table 8: Pupil Type/Teacher Type Interaction on SSI-AS VI-25

Table 9: Group Mean Profiles from Year II Typing on Pupils VI-28

Table 10: Comparisons of Pupil Type Groups VI-29

Table 11: Group Mean Profiles from Year II Typing of Teachers VI-31

Table 12: Type Assignments in Year I and Year II . . . VI-32

Table 13: Distribution of Pupil Types Among Teacher Types VI-33

Table 14: Pre-Post Changes of Pupil and Teacher Types . VI-35

Table 15: Adjusted Post-Test Levels of Pupil and Teacher Types VI-37

Table 16: Group Mean Pupil Profiles from Kentucky Sample VI-39

Table 17: Group Mean Profile of Teacher Types (Kentucky) VI-43

Table 18: Distribution of Pupil Types Among Teacher Types VI-43

Table 19: Pre-Post Changes of Pupil and Teacher Types . VI-45

Table 20: Adjusted Post-Test Levels of Pupil and Teacher Types VI-45

Figure 1: Score Profiles of the Four Pupil Types (Austin I) VI-49

Figure 2: Score Profiles of the Three Teacher Types (Austin I) VI-51

Figure 3: Score Profiles of the Four Pupil Types (Austin II) VI-53

Figure 4: Score Profiles of the Three Teacher Types (Austin II) VI-55

CHAPTER VII -- The Effects of Student Characteristics on Learning Outcomes VII-1

Figure 5: Score Profiles of the Four Pupil Types (Kentucky) VI-57

Figure 6: Score Profiles of the Three Teacher Types (Kentucky) VI-59

Table ACH1: The Relationship Between Initial Achievement and Pupil Characteristics VII-19

Table ACH2: The Effects of Student Characteristics on Regressed Change in Achievement VII-21

Table ACH3: The Effects of Classroom Behavior on Regressed Change on Achievement VII-23

Graph ACH1: ACH (CT) Post.Pre vs BRS-OR: Austin I . . VII-25

Graph ACH2: ACH (CT) Post.Pre vs SSC-C: Austin I . . . VII-27

Graph ACH3: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-29

Graph ACH4: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-31

Graph ACH5: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-33

Graph ACH6: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-35

Graph ACH7: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-37

Graph ACH8: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-39

Graph ACH9: ACH (GMG) Post vs ACH (GMG) Pre: Austin II VII-41

Graph ACH10: ACH (CT) Post vs ACH(CT) Pre: Austin I . . VII-43

Graph ACH11: ACH (CT) Post.Pre vs Acad Cop: Austin I . VII-45

Graph ACH12: ACH (GMG) Post.Pre vs Soc-Emo-Cop: Austin II VII-47

Graph ACH13: ACH (GMG) Post vs ACH (GMG) Pre: Austin II VII-49

Table P-RA COP1: The Relationship Between Initial Academic Coping: Peer Ratings and Pupil Characteristics VII-57

Table P-RA COP2: The Effects of Student Characteristics on Regressed Change in Academic Coping: Peer-Rated VII-59

Table P-RA COP3: The Effects of Classroom Behavior on Regressed Change on Academic Coping: Peer-Rated VII-61

Graph P-RA COP1: BRS-OR Post vs BRS-OR Pre: Austin II . VII-63

Graph P-RA COP2: BRS-OR Reg Chnge vs BRS-SR Pre: Austin II VII-65

CHAPTER VII -- Students (Con't)

Graph P-RA COP3: BRS-OR Post vs BRS-OR Pre: Austin II . VII-67
Graph P-RA COP4: BRS-OR Post vs BRS-OR Pre: Austin II . VII-69
Graph P-RA COP5: BRS-OR Post vs BRS-OR Pre: Austin II . VII-71
Table A COP: S-R1: The Relationship Between Initial Academic Coping: Self-Rating and Pupil Characteristics VII-79
Table A COP: S-R2: The Effects of Student Characteristics on Regressed Change in Academic Coping: Self-Rated VII-81
Table A COP: S-R3: The Effects of Classroom Behavior on Regressed Change on Academic Coping: Self-Rated VII-83
Graph A COP: BRS-SR Post vs BRS-OR Pre: Austin II . . . VII-85
Graph A COP: BRS-SR Post vs BRS-SR Pre: Austin II . . . VII-87
Table G COP: S-R1: The Relationship Between Initial General Coping: Self-Report and Pupil Characteristics VII-101
Table G COP: S-R2: The Effects of Student Characteristics on Regressed Change on General Coping: Self-Report VII-103
Table G COP: S-R3: The Effects of Classroom Behavior on Regressed Change on General Coping: Self-Report VII-105
Graph G COP: S-R1: SSC-C Post vs SSC-C Pre: Austin I . VII-107
Graph G COP: S-R2: SSC-C Post vs SSC-C Pre: Austin I . VII-109
Graph G COP: S-R3: SSC-C Post.Pre vs SSI-Att: Kentucky VII-111
Graph G COP: S-R4: SSC-C Post vs SSC-C Pre: Kentucky . VII-113
Graph G COP: S-R5: SSC-C Post vs SSC-C Pre: Austin I . VII-115
Graph G COP: S-R6: SSC-C Post.Pre vs P-H: Austin I . . VII-117
Graph G COP: S-R7: SSC-C Post.Pre vs TOT: Austin I . . VII-119
Graph G COP: S-R8: SSC-C Post vs SSC-C Pre: Kentucky . VII-121
Graph G COP: S-R9: SSC-C Post vs SSC-C Pre: Austin II . VII-123
Table GATT1: The Relationship Between Initial Attitude: General and Pupil Characteristics VII-137
Table GATT2: The Effects of Student Characteristics on Regressed Change on Attitude: General . . VII-139

CHAPTER VII -- Students (Con't)

Table GATT3: The Effects of Classroom Behavior on Regressed Change on Attitude: General . . VII-141
Graph GATT1: SSC-A Post vs SSC-A Pre: Kentucky VII-143
Graph GATT2: SSC-A Post vs SSC-A Pre: Kentucky VII-145
Graph GATT3: SSC-A Post vs SSC-A Pre: Austin II VII-147
Graph GATT4: SSC-A Post vs SSC-A Pre: Kentucky VII-149
Graph GATT5: SSC-A Post.Pre vs BRS-SR: Kentucky VII-151
Graph GATT6: SSC-A Post.Pre vs BRS-SR: Austin II . . . VII-153
Graph GATT7: SSC-A Post vs SSC-A Pre: Kentucky VII-155
Graph GATT8: SSC-A Post vs SSC-A Pre: Kentucky VII-157
Graph GATT9: SSC-A Post.Pre vs SSI-Att: Kentucky . . . VII-159
Graph GATT10: SSC-A Post vs SSC-A Pre: Austin I VII-161
Graph GATT11: SSC-A Post vs SSC-A Pre: Austin I VII-163
Graph GATT12: SSC-A Post vs SSC-A Pre: Austin I VII-165
Graph GATT13: SSC-A Post vs SSC-A Pre: Austin II VII-167
Graph GATT14: SSC-A Post.Pre vs P-H: Austin I VII-169
Graph GATT15: SSC-A Post.Pre vs P-H: Kentucky VII-171
Graph GATT16: SSC-A Post.Pre vs TOT: Kentucky VII-173
Graph GATT17: SSC-A Post vs SSC-A Pre: Kentucky VII-175
Graph GATT18: SSC-A Post vs SSC-A Pre: Kentucky VII-177
Graph GATT19: SSC-A Post vs SSC-A Pre: Kentucky VII-179
Graph GATT20: SSC-A Post vs SSC-A Pre: Austin II VII-181
Graph GATT21: SSC-A Post.Pre vs Soc-Emo-Cop: Kentucky . VII-183
Graph GATT22: SSC-A Post vs SSC-A Pre: Austin II VII-185
Table SA1: The Relationship Between Initial Attitude: School and Pupil Characteristics VII-199
Table SA2: The Effects of Student Characteristics on Regressed Change on Attitude: School . . . VII-201
Table SA3: The Effects of Classroom Behavior on Regressed Change on Attitude: School . . . VII-203
Graph SA1: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-205
Graph SA2: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-207
Graph SA3: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-209

CHAPTER VII -- Students (Con't)

Graph SA4: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-211
Graph SA5: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-213
Graph SA6: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-215
Graph SA7: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-217
Graph SA8: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-219
Graph SA9: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-221
Graph SA10: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-223
Graph SA11: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-225
Graph SA12: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-227
Graph SA13: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-229
Graph SA14: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-231
Graph SA15: SSI-Att Post.Pre vs Soc-Emo-Cop: Kentucky VII-233
Table SE1: The Relationship Between Initial Self-Esteem and Pupil Characteristics . . VII-247
Table SE2: The Effects of Student Characteristics on Regressed Change in Self-Esteem VII-249
Table SE3: The Effects of Classroom Behavior on Self-Esteem VII-251
Graph SE1: SSD Post vs SSD Pre: Austin II VII-253
Graph SE2: P-H Post vs P-H Pre: Austin I VII-255
Graph SE3: P-H Post vs P-H Pre: Kentucky VII-257
Graph SE4: SSD Post vs SSD Pre: Austin II VII-259
Graph SE5: P-H Post vs P-H Pre: Austin I VII-261
Graph SE6: P-H Post vs P-H Pre: Kentucky VII-263
Graph SE7: P-H Post vs P-H Pre: Austin I VII-265
Graph SE8: P-H Reg Chnge vs Acad Cop: Kentucky . . . VII-267

Acknowledgements

The greatest contribution to the study was that made by the teachers and children who gave it their time, their thought, and their cogent recommendations for improvement. Because they were assured of anonymity, they cannot be named here. They know who they are. It is our hope that they will find the findings and the other products of the study worthy of their dedicated, good-natured efforts.

The following people collaborated in the study, in various capacities, at some time in the project. Together, they carried out the essential work that produced the results described in this report. Their cogent ideas, their dedicated work, and their fine way of working with the teachers and with each other have been invaluable, and a deep source of pleasure.

Austin (Texas) Independent School District

M. K. Hage, Superintendent
M. G. Bowden, Director of Elementary Education
Freda Holley, Director, Office of Research and Evaluation
Frank Finklea, Principal, Travis Heights School
Roland Johnson, Principal, Webb School
Ruth Moses, Principal, Baker School
Wayne Rider, Principal, Joslin School
Margaret Haynie
Mary Jane Howell
Otis Johnson
Victoria Larson

Daviess County, Kentucky, Schools

F. T. Burns, Superintendent
Ed Wright, Assistant Superintendent
John Dunn, Principal, D. C. Middle School
John Mazaros, Principal, Philpot Elementary School
Glen Young, Principal, Tamarack Elementary School

Consultants

Ronald D. Adams
Betty Cleland
Jacob Cohen
Lee Cronbach
J. T. Sandefur
Richard Snow
Robert Soar
Donald J. Veldman

Research & Development Center for Teacher Education

Oliver Bown, Director
Mary V. Purcell, Assistant Director
Jean Mitchell, Business Manager

Staff

Abraham Blattstein
Debra Blattstein
Pam Blumenthal
John Breeding
Mary Z. Brennan
Donna Buntain
Jo Anne Buress
Jennifer Chester
M. Guadalupe Cisneros-Solis
Richard O. Clements
Robert Cobb
Joanne Deaver
Laura Dillow
Noel Dunivant
Rita Dunlay
Ronald B. Fox
Elma Frieling
William Froming
Robert Godbout
Kathy Goodwin
Kathy Gray
Freddie Green
Janet Green
Kerry Grombacher
Ruth A. Haak
Marta Hubbard
Robert Hughes
Jane Jackson
Susanne Kaboord
Ruth Kelley
Janice Knapp
Brad Manning
Lynda D. Manning
P. Thain Marston
Elaine Morris
Leslie Morriss
Barbara Murphy
Sabra Noyes
Nils Gregory Olsson
Nancy Patterson
Glen C. Payne
Kien T. Pham
Max Ritter
Ken Robeson
Karen Sitterle
Daw Teng
J. A. Tucker
Christine Vaughan
Carol Walton
Diana Weber
James Workman
Nancy Wilder

36

CHAPTER I

THE RATIONALE FOR THE STUDY

Overview

It is a truism in education that it often takes different approaches to achieve equivalent learning results with different students. There is no one "right way" to teach everyone. Effective teaching is as much a function of the needs, readiness and reactions of the widely varying students as it is of the teacher's strategy. In short, most learning is the product of an interaction between student and teacher characteristics; neither alone can accurately explain learning.

Moreover, it is not enough to look only at a test score, or at some other measure of academic learning, to evaluate the important outcomes of schooling. It is equally necessary to look at the effects on students' attitude toward further learning, on their self-confidence and self-respect, and on their generalized work-habits and coping skills if they are to apply their knowledge to the practical problems of life. Multiple outcomes of education must be assessed, simultaneously, before one can judge whether a year's schooling has been good or bad for the students, and in precisely what ways.

In recent years, major systems of instruction have been developed to try to take this into account: Individually Guided Education, Individually Prescribed Instruction, Personalized Teacher Education, Keller's Self-Paced Method, and others.

Even these systems involve more art than science. They rely almost entirely on intuitive teacher judgments, or on untested assumptions about what works best for whom, for there is very little research-based evidence, as yet, about what is most effective for different kinds of students. Indeed, as we grappled with this issue at The University of Texas R&D Center over the years, we found that the statistical technology had not yet been developed to identify accurately the different effects of instruction on different students when even as few as two kinds of input variables need to be considered simultaneously. (Borich, et al, 1973; Peck, et al, 1982).

As Cronbach (1975) pointed out, a simplistic search for "general laws" of human behavior is almost certainly either useless or incorrect at this stage of our knowledge. What is needed are studies that would allow us to say, for example, that instructional method X will produce intellectual progress for student type A, while maintaining his/her interest in further learning; whereas method Y will maintain interest but not promote much learning; while method Z will promote learning but kill interest. At the same time, student type B may learn enthusiastically from method Y, not learn as much from method X, and will have both learning and interest killed by method Z. In short, what is needed is research that reasonably reflects the multivariate nature of real-life learning and the interacting effects of teacher and learner characteristics as they affect important outcomes.

To study these problems, and to design more effective schooling, requires a logical model that examines the interacting effects of teaching strategies and student characteristics on multiple outcomes of instruction. In a growing number of studies, the use of an interaction paradigm has demonstrated that learning outcomes can only be explained as the result of an interplay of forces. Studies that fail to allow such interactions to be measured simply cannot arrive at an accurate map of the complex world of everyday learning. There are problems aplenty in this approach. Even in the course of updating his argument for a multivariate approach to the study of behavior, Cronbach (1975, 1976) points to troublesome limitations in our best, present quantitative methods for handling such issues. Nonetheless, he sees almost no validity at all in more simplistic approaches that ignore interaction effects, curvilinearity, or other evidence which indicates that not all people react the same way. He has found serious conceptual and statistical difficulites which must be overcome in any analysis which uses data on individual children, pooling classes. (Cronbach, 1976). Corrections for these factors have been made in the present study by selecting a nearly randomized sample, by using within-class analysis, and by testing for "class" effects in assessing the effects of teacher characteristics. (See Chapter IV.)

Hunt (1975) reviewed the evidence and the logic for what he calls the Person-Environment-Interaction (P.E.I.) paradigm. He proposed four essential elements for such a model: (a) that it look at multiple behavioral outcomes; (b) that it be "developmental" over some appreciable period of time; (c) that it look at the reciprocal interactions between person and environment; and (d) that it be "practical."

The present study does look at multiple outcomes; it observes learning over a full year of schooling; it specifically focuses, in part, on reciprocal interactions; and it attempts to be practical, both by looking at learning in its natural setting, in school, and by assessing outcomes that are widely held to be important. This line of research at The University of Texas grew out of the multidisciplinary tradition of the Committee on Human Development of the University of Chicago, represented by the work of such people as Havighurst, Warner, and Prescott. That tradition embodies the same debt to Kurt Lewin that Hunt acknowledges. It has shaped the design and instrumentation of a series of research studies, starting with the Mental Health in Teacher Education project (Peck, 1958); proceeding through the Teacher Personality, Teacher Education and Teaching Behavior study (Peck, 1962); the Computer Analysis of Personality project (Peck and Veldman, 1962); the program design for the R&D Center for Teaching Education (Peck, 1965); its Personalized Teacher Education program (Peck, 1970); its Individualized Teaching for Effective Coping project (Peck, 1968); and the Cross-National Study of Coping Styles and Achievement (Peck, 1972).

A considerable number of studies have used some form of the interaction paradigm. As early as 1944, Thompson and Hunnicutt reported that "introverted" students performed better when praised by their teachers, whereas "extroverts" performed better when criticized by teachers for their mistakes. Heil (Washburne and Heil, 1960) reported that teacher personality interacted with child personality to create differential learning in different types of children, with different patterns for different elementary school subjects.

Cronbach (1957) strongly recommended that an interaction paradigm be adopted as the best logical model for tracing educational effects to their actual causes because this better approximates the complex realities of everyday learning. Subsequently, quite a few studies attempted to embody this approach, although many of them used a very narrow definition of "aptitude-treatment interaction" (ATI). Moreover, according to Bracht (1970), "the analysis of an interaction effect was often an afterthought rather than a carefully planned part of an experiment." Nonetheless, Glass (in Wittrock and Wiley, 1970) concluded, "ATI has not paid off."

On the other hand, Cronbach and Snow (1969) found that the interaction approach explained learning better than the single-predictor model. Lesser (1971) cited a substantial number of other studies in support of this approach. Berliner and Cahen (1973) did not find as powerful confirmation of the trait-treatment interaction model as they expected, but they did see hope for it in better-conceived studies. Koran (1971), reporting a study with numerous interaction effects, observed "as Cronbach and Gleser have suggested (1965), initial study of aptitude X treatment interactions will quite possibly be more important for what it tells us about the psychology of instruction than for immediate placement purposes. However, such experimentation may eventually help provide a basis for the individualization of instruction."

Britt (1971) described an intriguing, computerized method of identifying "learner types" which, from the defining statements, also specifies the characteristics of differentiated instructional programs that should optimize the learning of each "type." He did not, however, cite evidence of the observed effectiveness of such differential instruction in practice. Salomon (1971) reviewed a number of studies that showed important ATI effects. His 1972 paper describes ways in which ATI can be turned into specifications for differential programs of instruction for different kinds of learners (Salomon 1972).

Studies reporting significant trait-treatment interaction effects that have not been cited in earlier reviews include the following: Berliner, 1972; Blitz and Smith, 1973; Britt, 1971; Brophy, 1975; Cronbach and Snow, 1969; Davis, 1967; Dowaliby and Schumer, 1973; Featherstone, 1973; Fisher, 1973; Kress and Gropper, 1966; Lippmann, 1970; Pervin, 1968; Shores, 1969; Smith, Wood, Downer, and Raygor, 1956; Tallmadge and Shearer, 1971; and Taylor, 1970.

It is easy to sympathize with the critics of the P.E.I. approach. In struggling to use it in various action-research and pure research studies here at The University of Texas over the past twenty years, we have found that it is difficult and expensive to conceptualize this approach sharply, to instrument it soundly, to carry it out in practical settings, and to analyze it. Some of the necessary statistical procedures, for example, have only been developed into a usable form within the past five to seven years. Some of the key issues are not yet settled. Nonetheless, every time we have used this approach it has proved out (Peck, et al, 1982). The findings from the present study seem to confirm that it is every bit as essential to an accurate, insightful, useful analysis of human learning and human development as we initially supposed it might be.

The Teaching-Learning Interaction program was dedicated to three major objectives. Methodologically, it sought to develop improved instruments and statistical models that would make it possible to assess the interacting effects of teacher-student characteristics on multiple student outcomes: academic progress, attitudes toward learning, coping skills, and self-esteem. Substantively, it looked at the specific effects of different teaching strategies on different kinds of students, including differences due to socioeconomic level and ethnicity, as well as those due to individual characteristics. Practically, it sought to find whether it is possible to develop appropriate "prescriptions" for achieving optimum effect on a specified outcome, for a particular kind of student. Any such "prescriptions" would thereafter need to be field-tested, so that those that proved valid could be incorporated into training materials for in-service and pre-service teacher education.

The design provided for double testing of all findings by replicating the study with the same teachers but different classes in two successive years in Austin, Texas, and by replicating the study in Daviess County, Kentucky. The instrumentation provided reliable measurement of teachers' personal characteristics, their teaching behavior, and multiple student characteristics, demographic as well as personal. The Austin sample consisted of a representative sample of the Anglo-Black-Chicano population, assigned in approximately proportionate numbers to classes in integrated, sixth grade learning centers. A 9-stage analytic model was developed which tested for linear, curvilinear, and interaction effects of teacher and student variables, and a test for the appropriate unit of analysis (individual student or class) to correct for possible nested variance. "Gains" were assessed by covariance, using the pretest as a covariate, since this is the soundest way currently available for estimating change, and its correlates. Generalizability of findings can be estimated by looking at effects that replicate across the two years and the two sites. Along with the quantitative data, considerable descriptive date were collected during the observations, and in repeated interviews. This yielded brief but behaviorally detailed case studies of the interaction process between each teacher and a varied sample of individual students. These data and the implications of the factual findings contained in this report, will be presented in subsequent publications.

Conceptual Design and Instrumentation

Figure 1 presents a simplified conceptual system, adapted in part from Bloom (1956) and Krathwohl (1964). It identifies three kinds of skills: cognitive, affective, and coping; and three aspects of life to which each skill applies: career-related activities, interpersonal activities, and intrapersonal experiences. The specific skills listed within each of the nine cells are only a few illustrations, out of many that could be described. They are chosen for their saliency for education and for living.

When looked at as goals for students, they specify desirable outcomes that parents and educators have long assumed should be the goals of public schooling. When looked at with teachers in mind, they describe skills which are desirable for teachers to possess, in order that they may facilitate the growth of their students in these same directions.

Figure 2 shows the instruments that were selected to represent a few aspects of each student sub-cell in Figure 1. In the career domain, standardized achievement tests represented knowledge of facts, and some skills; they did not test abilities to do self-initiated conceptualizing, analyze complex problems, or create new solutions.

Affective attributes in the career domain were represented by measures of attitudes toward school, toward teacher, and toward life in general. No assessment was made of degree of interest in specific subject fields, commitment to the truth ethic, or commitment to some general career line, although these have a critical bearing on the quality and ultimate use of school experience.

Work habits were assessed by peer, teacher and self-ratings of academic coping skills. Skills of self-analysis, career planning, and insightful perspective on one's place in the overall world of work and society, were not assessed.

In the interpersonal domain, some items in the Behavior Rating System assessed interpersonal competence, as did the teacher ratings of socio-emotional coping skill in the special-study sub-sample of pupils. These measures imply the quality of social judgment, but they do not specifically measure it. Affective skills were not directly or precisely assessed, either, except for these _implied_ by the BRS ratings of peer relations, by the attitudes toward teachers assessed by the School Sentiment Index, and by the attitudes toward a variety of people which were subsumed in the Sentence Completion Attitude scales. In the coping skill sub-domain, the issue of interpersonal competence was directly addressed by the BRS and Student Description (teacher-rating) measures. Thus, only global competence was assessed, not the specific cognitive and affective skills that undoubtedly make for competence.

In the intrapersonal domain, the self-ratings (BRS-self; PH, SSD) _could_ be compared with the peer ratings, teacher ratings, and achievement scores, to assess a student's degree of realism in self-description. Such an analysis has not been done in this study, as yet, nor any use of a "realism" score in comparison with other measures. In the affective cell, self-esteem was directly assessed by the Piers-Harris/Student Self-Description, and by the BRS-self rating. One sub-set of items contained in the How This Class Makes Me Feel measure also assessed the teachers' impact on self-esteem. Although these items were not separated out for specific analysis, they could be. The items in the BRS and the Student Description dealing with mastery of anxiety and anger were not separately analyzed, but they did represent one aspect of the self-mastery that is at issue in the intrapersonal coping sub-domain.

Behavioral anecdotes and evaluative comments pertaining to many of these domains were captured in the class observation records and the teacher-interview records.

Thus, out of the many, critical factors at work in the real world of the classroom, just a few were selected for quantitative study, representing most but not all of the cells in Figure 1. The reason for this extreme parsimony is probably self-evident. It cost a small fortune to study even this limited number of variables, in the smallest number of classrooms (not over 100) that would permit sufficiently powerful statistical analysis to test the ideas at issue.

The pupil and teacher assessment data were organized into a planned network of cross-linkages. Figures 3 and 4 describe the presage measures, taken four to six weeks into the school year; a set of process measures based on periodic observations and interviews through the year (low, medium or high inference measures, in different instances); and outcome measures, taken in April, the second-last month of the school year. As much independence of measurement as possible was built into the system by using several sets of informants about the same issue (teachers, students and observers). This permitted multiple cross-validation of any one measure, (see Chapters III, V and VII).

Since the measures were taken in a three-stage temporal order, they can be analyzed for antecedent-subsequent relationships in ways that may imply causal explanations. Even though it cannot prove causality, such analysis can greatly sharpen and focus attention on particular antecedent-consequent relationships which can thereafter be put to experimental or replicative testing, to identify causal connectedness between antecedent and subsequent phenomenon.

Figure 5 sketches a Lewinian network that links teacher and pupil entry characteristics, in the Fall, to their subsequent behavior during the year, and on to student outcomes at end of the school year. To a certain degree, tests of causality are implied, by predicting a specified, directional effect of an antecedent measure (e.g., teacher Systematic-Organized behavior) on a proximally consequent measure (e.g., student Time-on-Task) and on a final, presumed consequence (e.g., student regressed gain in achievement, self-esteem, or coping skill). Such predictions were made in the form of the propositions that follow. A number in Figure 5 shows the connection between particular variables which is stated in the correspondingly numbered proposition

The Propositions of the Study

1. Student entry levels of achievement, attitudes, self-esteem, and coping skill will be positively intercorrelated.

This proposition assumes that there is a good deal of reciprocal interaction, within a person, among thought, feeling and action. A record of positive achievement is likely to enhance self-esteem; self-esteem is likely to make attitudes toward others positive; positive attitudes are likely to enhance effort; and so on. This assumption was implicit in John Dewey's injunction to educators to be aware and responsive to all of the needs of "the whole child." There is nothing mystical in this, simply the recognition that good mental health, social competence, and good intellectual performance are more likely than not to go hand in hand, as Freud and Adler believed, and as many empirical researchers have found, since Terman's time.

2. Student entry level on each of these characteristics will positively influence change (regressed gain) on each student outcome.

This assumes that, within the school year subsequent to the pretesting, a high level of achievement will tend to enhance self-esteem, and vice versa; that positive attitudes will tend to enhance achievement and self-esteem, and vice versa; that good coping skills will lead to relatively greater gains in achievement, self-esteem and attitude, and vice versa. Inplicit in this is the implied consequence that the difference between students on any one of these dimensions is likely to increase over time, unless a vigorous, successful intervention is made to prevent it. Bloom's findings on this point (Bloom, 1964) led him to support Carroll's proposal for "mastery education," as a corrective for this tendency for inequalities to grow greater over children's school years.

2a. A sub-proposition is that many of these effects will be curvilinear. Cronbach posits this on theoretical grounds. Soar, especially, has empirically demonstrated it in the learning and behavior of school children (Soar, 1976). One way to picture this is that one characteristic will have most of its effects on another when the first one exceeds a certain threshold value (in either a positive or a negative direction). Another, is that the relationship only reaches appreciable strength for certain people but does not obtain among other sub-groups of people. Only by allowing for the quadratic form of each measure can this kind of real but not universal effect be identified. Otherwise, a considerable number of false negative findings are likely to appear, concealing real relationships that are true of some people, but not all.

3. Student entry level on each characteristic will positively affect school attendance.

This assumes that school attendance will be greater for students who achieved and coped well, had positive attitudes, and possessed good self-esteem at the beginning of the year.

3a. Student attendance will have a positive relationship to student outcomes.

There is a further assumption to be tested, that attendance makes a difference to the outcomes of schooling. The better the attendance, the more positive gains a student is expected to show.

4. Student entry levels will positively affect time-on-task behavior.

This assumes that achieving well will predispose students to attend to tasks a large part of the time; or, in another view, that predisposed habits of attending to work have led to good achievement, and that such habits are likely to continue in good achievers. Similarly, positive, initial attitudes and coping skills are expected to be reflected in on-task behavior, subsequently.

5. Student entry levels will positively affect classroom behavior.

Positive entering achievement, attitudes, self-esteem and coping skill are expected to be reflected in task-oriented, competent classroom behavior, both at the individual level and when whole classes are compared.

6. Teacher age and experience will correlate positively with desirable personal traits.

Age and professional experience are expected to lead to confidence and optimism, and a lesser degree of social abrasiveness, anxiety and social introversion, during the first twenty or twenty-five years on the job. There might be decline in some of these, late in life, for some people.

7. Teacher age and experience will positively affect teaching behavior.

Age and professional experience are expected to enhance teachers' understanding treatment of students, their ability to make and follow an orderly, appropriate plan of instruction, and their ability to use a diverse array of approaches in an attention-capturing, stimulating way, as emergent student needs call for it.

8. Teacher age and experience will positively affect class behavior.

Older, more experienced teachers are expected to have more orderly, task-oriented classes, as seen in their students' behavior.

9. Teacher age and experience will positively affect student attendance.

Because of their (presumed) greater competence, older, more experienced teachers are expected to have relatively higher pupil attendance.

10. Teacher age and experience will positively affect student time-on-task.

Older, more experienced teachers are expected to keep students attending to their work more of the time.

11. Teacher age and experience will positively affect student outcomes.

The superior competence presumed to come with increasing age and experience is expected to make for more positive student gains, in all outcomes.

12. Positive teacher traits will positively affect teaching behavior.

Positive qualities such as a positive attitude, a sense of attractiveness, efficiency and individuality, are expected to have a positive effect on teachers' kindliness, organization, and inventiveness. Negative qualities such as abrasiveness, anxiety, and possibly social introversion, should be negatively related to these three aspects of teaching behavior.

13. Positive teacher traits will positively affect class behavior.

Positive attitude, efficiency, individuality and a sense of attractiveness are expected to have a favorable effect on the classroom behavior of students; conversely, abrasiveness, anxiety and introversion should have negative effects.

14. Positive teacher traits will positively affect student attendance.

Positive attitude, efficiency, individuality and attractiveness should have a positive effect on attendance; abrasiveness, anxiety and introversion should have negative effects.

15. Positive teacher traits will positively affect student time-on-task.

Positive attitude, efficiency, individuality and attractiveness should help teacher keep their students on task; abrasiveness, anxiety and introversion should have a negative effect.

16. Positive teacher traits will positively affect student outcomes.

Positive attitude, efficiency, individuality and attractiveness should have positive effects on student gains; abrasiveness, anxiety and introversion should have negative effects.

17. Individual teaching behavior will show stability across time and subjects.

In keeping with Bloom's synthesis of the evidence for the marked stability over time of individual behavior, even of school age children, and similar evidence for the continuity of adult behavior (Peck and Parsons, 1956; Peck, Payne and Cisneros-Soliz, 1982), but in contrast to Mischel's extreme view that behavior is primarily determined by situational circumstances, it is expected that teachers will show a substantial degree of individual consistency in their behavior, over different kinds of classes and over extended periods of time (from four months to two years in extent). It is not expected that their precise instructional tactics will be rigidly fixed from moment to moment, or class to class, nor is it expected that an individual's mood, orderliness or imagination are always of the same kind. It is expected, however, that the differences between teachers will be substantially greater than the differences within individual teachers, and that most teachers are likely to keep about the same comparative rank in general orderliness, understanding of students, and imaginativeness, over months and years.

18. Positive teaching behavior will positively affect class behavior.

Teacher understanding, orderliness and imagination are expected to have positive effects on the work-oriented, disciplined conduct of students.

19. Positive teaching behavior will positively affect student attendance.

Teacher understanding, orderliness and imagination are expected to motivate students to attend class regularly.

20. Positive teaching behavior will positively affect student time-on-task.

Teacher understanding, orderliness and imagination are expected to have positive effects on individual students' concentration of their work.

21. Positive teaching behavior will positively affect student evaluations of the teacher.

Teacher understanding, orderliness and imagination are expected to have positive effects on student evaluation of the teacher.

22. Student time-on-task will correlate positively with individual coping behavior.

It is expected that teachers will give positive assessments for academic skill to students who attend most consistently to their classwork.

23. Student time-on-task will positively affect student outcomes.

In keeping with the findings of other recent research, it is expected that student attention to work will have a positive effect not only on their achievement gain, but on changes in their attitudes, self-esteem, and coping skills.

24. Individual classroom coping behavior will positively affect student outcomes.

Teacher ratings of individual students' coping skills, both academic and social-emotional, are expected to have a positive relationship to student gain, on all outcomes. To the extent that this relationship may be confirmed, it will indicate that teacher judgments of students' application are valid.

25. Positive class behavior will positively affect class outcomes.

Classes where the students act in an orderly, purposeful, work-oriented way are expected to show more positive change in achievement, attitudes, self-esteem and coping skill. Their efforts are more likely to produce successful learning, enhance their skills, and thus give them cause to feel better about themselves and their world.

26. Positive teaching behavior will positively affect student outcomes.

Teacher understanding, organization and imagination are expected to have positive effects on student gains. The classes of high-rated teachers should change more positively than those of lower-rated teachers.

27. Positive student evaluations of teacher (class means) will positively affect student outcomes.

The classes of teachers whose students evaluate them positively are expected to show more positive change over the year in all outcomes. There is an assumption here, as in Proposition 26, that effective teaching will produce more student gains. If that proves true, then a positive finding on this proposition will imply that student evaluations are a relatively objective, valid index of true teacher effectiveness.

28. Teacher x student interaction effects will affect student outcomes.

This assumes that a given kind of teaching behavior will sometimes have significantly different effects on different kinds of students. Alternatively or additionally, it may be that a particular kind of student reacts differently to different kinds of teaching. In either case, one may find that a certain kind or level of teaching has a significant effect on students with a certain level of achievement, let us say, but no effect or even an opposite effect on students with a different level of initial achievement.

In a way, this is a logical analogy of the case where a curvilinear relationship is found between a kind of teaching behavior and change on a student outcome measure. In both cases, the effect is not generally true for all teachers as they deal with all students; but it may be true of certain teachers as they deal with certain children.

Any such finding puts a limitation on the general relationship between that particular aspect of teaching and that student outcome, as it might occur under Proposition 26. Even if a positive effect were found there, of kindly-understanding teaching on student change in self-esteem, for example, a significant interaction effect would say that the relationship does not hold true, or not uniformly true, for all teacher-student combinations.

29. Higher student SES will positively affect student entry levels.

There is a great deal of evidence that students of higher socioeconomic status tend, on the average, to achieve better in school than students of lower status. The same may be true of student attitudes and self-esteem, although the evidence to date is not unequivocal. The known correlation of socioeconomic status with mental health (Hollingshead, 1958; Srole et al, 1962), and direct evidence from the international study of coping skills (Peck et al, 1972) suggest that status should also be positively correlated with initial coping skill.

30. Higher student SES will positively affect individual coping behavior.

By the same logic as in Proposition 29, students of higher status are expected to demonstrate observably better academic and social-emotional coping skills in their classroom behavior during the year.

31. Higher student SES will positively affect student time-on-task.

Still following the same logic, students of higher status are expected to attend to schoolwork more consistently, being better motivated and having more effective habits of self-initiated, self-sustained effort (coping skills).

32. Higher student SES will positively affect student outcomes.

If the chain of effects just described holds true, it should follow that students of higher status should make relatively greater gains then students of lower status: "the rich, get richer and the poor get poorer," metaphorically speaking.

It is essential to recognize that socioeconomic status is only a marker variable, not an active force in its own right that creates or inhibits growth and learning. Families at different levels of socioeconomic status have somewhat different patterns of values, motivation for intellectual effort, levels of parental self-esteem, and coping skills. The actual people who demonstrate these skills, attitudes and motivation do have effects on their children which the children bring to school. It is these characteristics, to which socioeconomic status may be a rough index, that would account for the linkages proposed in Propositions 29 to 33.

33. Effects of teaching behavior on student outcomes will vary with student SES.

Because students of different status levels are expected to differ in their expectations, motivation and effort, it is expected that they will respond somewhat differently to any given kind of teaching, thus leading to different degrees or directions of change in outcome measures, given the same kind of teaching.

34. Student ethnic groups will be randomly assigned to teachers.

In Austin, the school administration made a strong effort to assign students randomly to schools and to teachers, so as to equalize opportunity for children of all ethnic groups. This was accomplished down to the level of the four-teacher teams. The purpose of this proposition is to test the degree to which such randomness was achieved in assigning students to individual teachers, within the teams.

35. Student ethnicity will affect entry levels.

There is much evidence of ethnic differences in achievement in multi-ethnic communities in America. As in the case of socio-economic status, ethnic membership is not an effector agent but a marker variable. If the adult members of culture groups differ in values, skills or other things that can affect responsiveness to education, their children can be expected to vary in these ways, according to their ethnic milieu. It is important, therefore, to see if there are significant differences linked to ethnicity, at the outset of the school year, on all of the variables that are to be tracked to their outcomes.

Since there is quite a strong association between ethnicity and socio-economic status where Blacks, Mexican-Americans and Anglos are compared, it is desirable to partial the effect of SES from any test of "ethnic" effects, to insure that any "ethnic" difference found is not primarily due to the SES differences among the three ethnic groups.

It should not need saying, that a finding of ethnic differences at age ten, or later, says nothing whatever about the causes of those differences. Such a finding certainly is not grounds for assuming "inherent" or "genetically derived" differences in capability, learning ability, capacity for social responsibility, or any other important characteristic. It is equally true, however, that education cannot direct itself efficiently to the learning needs of children of any ethnic group if it does not honestly and accurately identify precisely what those needs are. Looking at ethnic differences, in this study, is intended to yield an honest, insightful picture of the specific knowledge, attitudes and skills of the children of each ethnic group, toward the end that each may be more effectively brought to his or her full potential.

36. Student ethnicity will affect individual coping behavior.

If there are ethnic differences in motivation, level of knowledge, and coping skill at the beginning of the year, these should continue to manifest themselves in students' classroom coping behavior throughout the year.

37. Student ethnicity will affect student time-on-task.

Similarily, initial ethnic differences should continue to manifest themselves in application to classwork through the year.

38. Student ethnicity will affect student outcomes.

If school has a somewhat different meaning or a different impact on students of different ethnic origins, this might show up in different patterns of gain or change over the course of the year. No directional differences are predicted; this is an exploratory hypothesis. The possible effect of status differences among the ethnic groups will be statistically controlled, for the reasons discussed above.

39. Student ethnicity will interact with teacher behavior in affecting outcomes.

It is particularly desirable to find out if teacher behavior has different effects on the schooling outcomes of the three ethnic groups. If such differences are found, it could be because the teachers treat children of different ethnic group differently, because students of different ethnicity respond differently, or both. If few or no such interaction effects are found, this would appear to indicate a lack of ethnic bias on the teachers' part, as well as a lack of differential responsiveness on the students' part.

40. Student sex will affect entry levels.

Within the past three years an old debate has been reactivated in education circles, about whether boys are inherently more likely to achieve well in school than girls, especially in mathematics. Speculation has even extended to the presumption of sex differences in the efficient functioning of the two halves of the brain. Actually, there is a great deal of evidence that academic performance differences do not systematically favor either sex. (Peck, et al, 1972.) At some times and places girls have done better than boys, and vice versa.

Nevertheless, it is of considerable practical importance to find out whether, in a particular set of students, there are systematic sex differences in knowledge, attitudes or coping skills. Just as in the case of SES or ethnic differences, optimally effective instruction cannot be selected for any group of students if their starting point is not known.

41. Student sex will affect individual coping behaviors.

Traditionally, girls have been found to conduct themselves more civilly and seriously in school than boys. It is expected that this will be true of the students in the study, as assessed by teacher ratings of classroom coping behavior, with the factors of aptitude and effort held constant by the sampling design for selecting the "special study" subset of students. (See Chapter III and VII.)

42. Student sex will affect time-on-task.

Following the same logic, it is expected that girls will concentrate on their school work a greater part of the time than boys.

43. Student sex will affect student outcomes.

If the foregoing propositions prove true, it should follow that girls would show more positive changes than boys, on most or all outcomes of schooling.

Certain other propositions are implicit in the design of the study:

1. The measures of student characteristics will prove reliable, and they will also prove valid by tests of construct validity, consequent validity and predictive validity.

2. The measures of teachers' personal traits and their teaching behavior will prove reliable and valid.

3. Some findings will prove generalizable for a particular sample by appearing in both the within-class and between-class analyses.

Some findings will prove generalizable across samples by replication in all samples, at both regional sites. Findings that are different from sample to sample cannot be dismissed as invalid for the samples where they do appear, when they meet the tests of statistical significance and meaningfulness; but sample differences would indicate that a single, general "law" of linkage cannot be accepted as universally valid. Such differences would indicate that circumstances, including many unidentified, unmeasured factors, do alter the effects of the teacher and student characteristics which have been assessed in this design. One of the main exploratory purposes of this study is to find out how many relationships appear everywhere, in the same form, and how many differ from one sample to another.

Interconnections of Teacher and Student Factors That Affect Student Progress

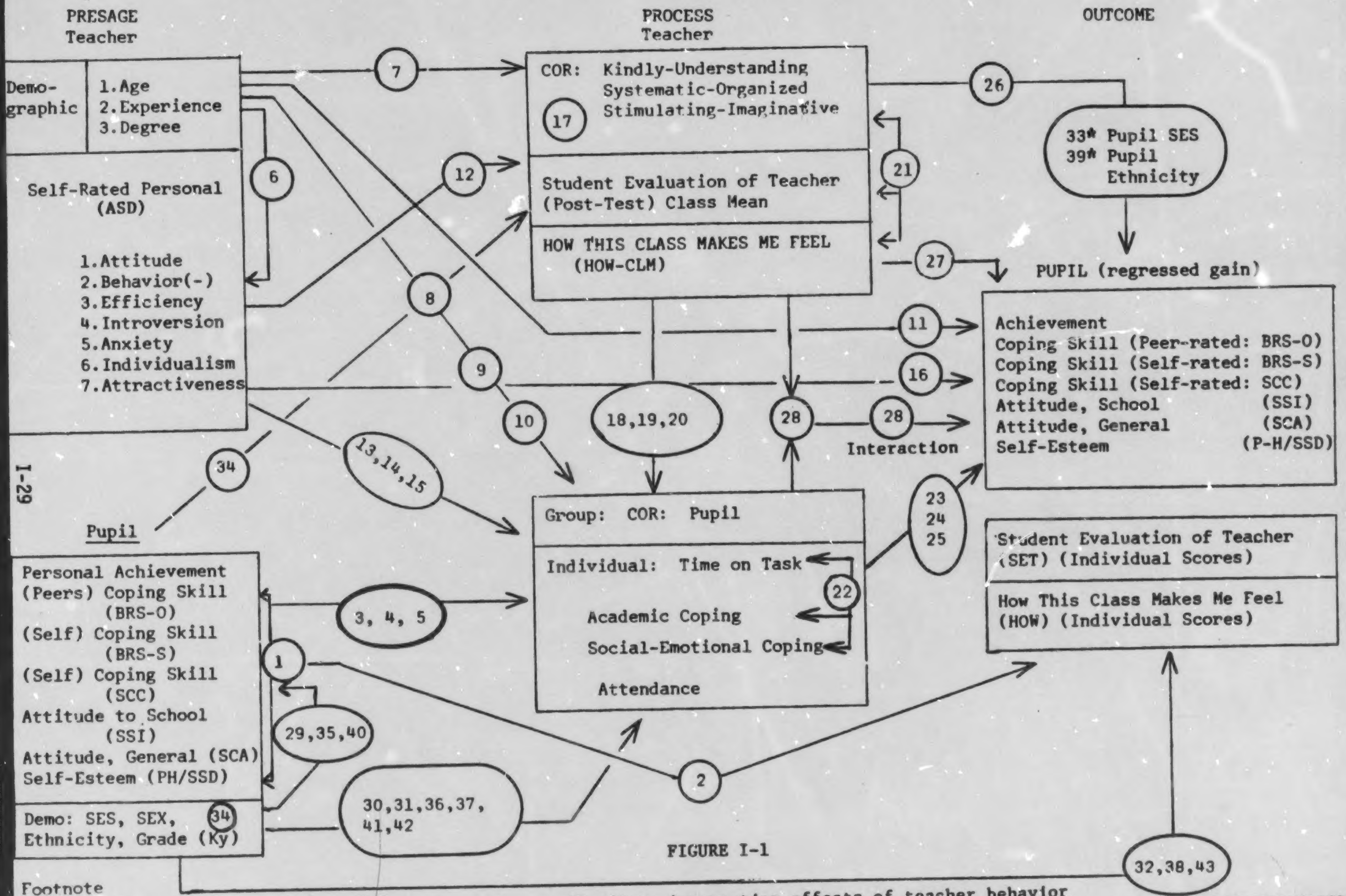

PRESAGE
Teacher
Demo-graphic
1. Age
2. Experience
3. Degree
Self-Rated Personal (ASD)
1. Attitude
2. Behavior(-)
3. Efficiency
4. Introversion
5. Anxiety
6. Individualism
7. Attractiveness
Pupil
Personal Achievement
(Peers) Coping Skill (BRS-O)
(Self) Coping Skill (BRS-S)
(Self) Coping Skill (SCC)
Attitude to School (SSI)
Attitude, General (SCA)
Self-Esteem (PH/SSD)
Demo: SES, SEX, Ethnicity, Grade (Ky)
PROCESS
Teacher
COR: Kindly-Understanding
Systematic-Organized
Stimulating-Imaginative
Student Evaluation of Teacher (Post-Test) Class Mean
HOW THIS CLASS MAKES ME FEEL (HOW-CLM)
Group: COR: Pupil
Individual: Time on Task
Academic Coping
Social-Emotional Coping
Attendance
Interaction
OUTCOME
33* Pupil SES
39* Pupil Ethnicity
PUPIL (regressed gain)
Achievement
Coping Skill (Peer-rated: BRS-O)
Coping Skill (Self-rated: BRS-S)
Coping Skill (Self-rated: SCC)
Attitude, School (SSI)
Attitude, General (SCA)
Self-Esteem (P-H/SSD)
Student Evaluation of Teacher (SET) (Individual Scores)
How This Class Makes Me Feel (HOW) (Individual Scores)
1
2
3, 4, 5
6
7
8
9
10
11
12
13,14,15
16
17
18,19,20
21
22
23
24
25
26
27
28
28
29,35,40
30,31,36,37,41,42
32,38,43
34
34

FIGURE I-1

Footnote
① = Proposition #1

*Predicts interaction effects of teacher behavior with pupil SES and Ethnicity

BEST COPY AVAILABLE

CHAPTER II

The Research Sample
and The Feedback Procedures

The Samples

Since the subject of this research was pupil-teacher interactions in normal settings, a sample of intact classrooms was chosen. School systems were needed in which teachers would voluntarily enlist themselves and their classes in the research.

The Austin Independent School District (AISD) was a natural choice, since it had conducted cooperative research for many years with the Research and Development Center for Teacher Education. The project director also had cooperated with the faculty at Western Kentucky University which, in turn, had cooperative agreements with several school systems in Kentucky. It was decided to approach the Austin and the Daviess County, Kentucky school systems for approval to do the research in their schools.

In order to make generalizable statements about pupil-teacher interactions, the sample classrooms needed to be representative of classrooms in that school system and other systems around the United States. Comparing classrooms from Texas and Kentucky would very modestly support some generalizability to classrooms in the United States. It was known that, by design, certain classrooms in Austin were ethnically representative of the city population. In Kentucky, on the other hand, all but two students were Anglo. Classes in both sites were quite similar in their wide range of socioeconomic status.

Austin, Texas

The Austin Independent School District (AISD) and the Research and Development Center for Teacher Education have a long history of working together. From 1965 to 1971, the AISD was represented on the Advisory Board of the Research and Development Center, which met monthly. The Center has trained many persons who have become members of the school district's own Office of Research and Evaluation. The Research and Development Center and AISD have been in the past, and are presently, involved in several cooperative research projects.

In 1974, mutual interests and concerns of the R & D Center's Teaching-Learning Interaction Study (TLIS) and the AISD led to the selection of the AISD's Sixth-grade Learning Centers as field sites for the TLIS. The TLIS was to be a basic research study of student-teacher interaction focused, in part, on minority and poor children. For numerous reasons, the project director sought a representative sample of the Austin population, including minority children and children of all socioeconomic status levels, randomly assigned across classrooms to a random selection of teachers. The Sixth-Grade Learning Centers of the AISD offered an unusually close approximation to such a sample. These learning centers were organized as a way for the Austin School System to comply with a desegregation order. As a result, students and teachers were largely randomly assigned. The ones selected for this research project covered the full range of pupil SES, and the ethnic proportions of pupils were almost exactly the same as the ethnic proportions in the child-population of the city. At that time, the school district expressed concern about the learning problems of minority and poor children, but had no hard information about the kinds of teaching that might be most helpful to these children. AISD felt that it would benefit from the information gathered and analyzed by the TLIS.

The research project offered some useful feedback to teachers. The TLIS design called for achievement testing of all children in the sample at the beginning of the school year. The school district tested students in the spring rather than the fall. If the project provided fall achievement testing, the teachers could make use of the fall test scores as an additional tool to assess their students' skill levels. This kind of practical feedback was an additional incentive for the teachers and the school system. Providing feedback did pose a theoretical design problem because teachers would be given information that might change their instruction in certain ways; but this is what they usually do as they observe the classroom performance of students. (Teachers and administrators were also given feedback about findings from the study after the data collection and analyses were completed.)

After the preliminary discussions in Spring 1974, plans were made to begin research in the fall.

Copies of each instrument to be used in the study were presented to the Educational Psychology Review Committee and the University Review Committee of the University of Texas at Austin, according to University procedure. This was really a request for renewal of approval, since in the past the instruments had been repeatedly approved by the review committees of the University and the U.S. Office of Education. The instruments were also presented to Dr. M.G. Bowden, director of Elementary Education of AISD, and Dr. Freda Holley, head of the AISD Office of Research and Evaluation, for their approval. The study did not attempt to obtain the informed consent of individual parents, but instead administered the instruments through the auspices of the AISD. Measures taken as part of the school district's own research and evaluation efforts did not require additional consent. Educators around the country had typically experienced difficulty in obtaining individually signed consent forms for any kind of school activity, especially from low income families. A procedure was therefore desirable that would allow study of all pupils, if the research was to improve their education.

Formal application for the research study was made to the AISD on July 23, 1974. It was discussed with the curriculum supervisors in the school district. A meeting was held in each of the four school sites during the regular fall, pre-school teacher meetings. Teachers were given a written description of the project. The teachers were told about the instruments they would be asked to complete, the interviews they would give, and the observation and testing sessions that would occur in their classrooms.

A successful attempt was made to get schools which were geographically dispersed around the city of Austin. The principals of the four schools in which the project was conducted were helpful in recruiting teachers for the study. In three of the schools, the principals stressed that participation was voluntary and that teachers should not participate if they did not feel they had time. The number of teachers who initially volunteered in those three schools were 13 of 28 teachers, four of 17 teachers, and 16 of 35 teachers.

Eight teachers from this initial group were dropped or withdrew soon afterward, for various reasons. Four of these teachers were dropped because the grouping they did in their classrooms was not compatible with the project design. Two teachers decided not to participate because they felt they did not have time to complete the teacher assessment instruments. A third teacher had no class time to devote to the project; and the fourth teacher, for unspecified reasons, simply changed her mind about being in the project.

In the fourth school, the principal told the teachers that he had studied the project carefully and felt it would be worthwhile for the teachers to participate. Initially, all 31 teachers agreed to participate. Three teachers, in the first two weeks, decided not to participate in the project because of negative attitudes toward research studies in general. The first year Austin sample therefore consisted of 53 teachers from four sixth-grade centers. Since half or less of the teachers in three of the schools actually volunteered, the possibility of a "volunteer" effect existed. Comparison of the age, experience, and education of the volunteers with that of the total teacher population, however, and the wide range of teaching behavior recorded in the classroom observations, indicated that the teachers who participated quite proportionately represented the full range of teachers in the whole faculties of the schools.

The teachers who volunteered for this research project realized that it would take a considerable amount of their time and effort. Their volunteering was remarkable, considering the limited return they could be given for their efforts. They received feedback on individual students' achievement in the fall, as well as feedback about their class's mean scores on all other measures. They were offered an honorarium of fifty dollars a year. An effort was made to get the money to them before Christmas, which they found to be personally helpful.

In Austin, the study took place in four sixth-grade centers. In the first year of the study, 53 teachers participated; in the second year, 42 teachers participated (one teacher was observed with two classes). Of those, 20 participated in Year I, only, and nine participated in Year II, only.

The research design called for utilizing the same teachers in Year I and Year II. However, as could be expected, a number of the first year teachers were lost because they left the school system or transferred to other schools. A high proportion of those who were still in place in the second year did agree to participate again, with a new class of students. At the beginning of the second year, it was obvious that one school in Austin had had a high attrition rate of teachers. After considerable discussion with the field staff, it looked most practical to drop that one school, with three teachers, and focus resources on another school that had ten new volunteer teachers in addition to the first year, returning teachers. This decision saved much travel time and costs, while maintaining the number of classes in the second year sample.

Set up in August 1973, in response to the need for racial desegregation in Austin, the Sixth Grade Learning Centers were an attempt to achieve racial and ethnic balance below the junior high school level, while retaining neighborhood schools in lower grades and minimizing cross-town busing. Some sixth-grade centers were set up in former elementary school buildings and some in junior high buildings. Some administrators and faculty moved from higher level schools and some from lower level schools. Curriculum guides and textbooks were standard across all sixth grades, and the general scheme of four-teacher teams was recommended for all schools. The "unit" plan was used, in general, where each child was assigned to one homeroom teacher within a unit of four teachers. That teacher was responsible for keeping records on that child, though she might or might not see him in subject-matter classes. In some schools, each teacher within one team taught one subject (as in high school), while in other schools each teacher taught every subject, usually to one group of students.

Students were assigned to classes in these sixth grade schools in a manner designed to insure proportionate representation of all ethnic groups. The school population was approximately 63% Anglos, 19% Blacks, 17% Chicanos, and

1% Orientals. An equal number of girls and boys were assigned to classes. Initially, an attempt was made to distribute students heterogeneously within and across classes, according to previous academic performance. Officially, it was considered undesirable to group students into classes on the basis of achievement scores. In practice, in some schools all academic classes were ability-grouped; in others only math and reading were grouped. This grouping was done by the teachers within each team, in order to facilitate individually appropriate instruction. In all schools, the homeroom was a heterogeneous group. Student performance ranged from 1st to 12th grade reading level.

Even in Austin, the selection of the sixth-grade centers was not without its limitations. In these schools, each class of students rotated during the day among three or four teachers. That teacher was selected for observation who had the class for homeroom as well as for the social studies or reading period (in most cases), so that this teacher had twice the chance to influence the students as any other one teacher. This is not a critical problem where a student outcome measure was tightly linked to that teacher, such as the SET, the achievement test in that subject, or, in Year II, the How This Class Makes Me Feel measure of that particular teacher's impact on the student. The more generalized outcome measures of attitude (SSC-A, SSI), self-esteem (P-H), and generalized coping skill (SSC-C; BRS-OR POST, in Year II only) could not be that tightly linked to the effect of just the one teacher, however. It is almost a wonder that any systematic "teacher effects" were found on these measures, considering all the extraneous "noise" in the system, especially the influence of the other two or three teachers who taught the children the rest of the day.

For many reasons, the social studies (language arts) classes were picked for observation and testing in the first year of the study. It was the subject that most homeroom teachers taught. This meant that the students had this teacher twice a day. Second, social studies was a reasonably open kind of classroom situation, in its curriculum structure. As a result, an opportunity existed for students to be observed while doing a variety of classroom tasks, such as reading and spelling drills, oral reports to the class, and workbook assignments. During the first year of the study, however, it became obvious that social studies was the subject that was abandoned when something else came up, such as a field trip, a special assembly, or an emergency meeting of teachers. The observation schedule was frequently altered as a result.

For this and other reasons, therefore, reading classes were chosen for observation in the second year of the study. The teachers saw reading as the most basic skill, and they were most concerned about the students' progress in reading. They believed the study would help them most if it focused on reading classes. Providentially, reading was also the subject most likely to be taught by most of the teachers who were observed in the first year of the study.

A new problem arose in studying these classes. The students in each class were clustered into levels of ability groups, within each class. When choosing students for individual observation, an effort was therefore made to get students from all ability levels, and to observe groups at each ability level. However, this had the unexpected effect of non-randomly assigning high achieving students, more often than chance, to teachers who were later found to be more effective; and the converse was true of low-achieving students. (See Chapter VI for details.) Consequently, the most unassailable evidence of teacher effects on student outcomes is the within-class analysis of teacher x pupil interaction effects. The results of the between-class analyses where "teacher main effects" emerge, may be due in part to the class-differences in student achievement. In fact, this condition obtained in both years, in

Austin. It was a product of the sorting of students by the four-teacher teams. The administrators played no part in the assignment of students to a particular teacher.

An experiment was tried to find a criterion-referenced test for reading, as a potentially better way of assessing reading gains. For the children at the third and fourth, fifth and sixth, and seventh and eighth grade reading levels, different reading materials, different vocabulary, and different sentence complexity were being taught. One, single criterion-referenced test could not be used. The only partially satisfactory solution was to use the series of unit tests that accompanied each level of reading workbook. The teachers were not using these because they did not have the money to purchase the tests, but they would like to use them. Consequently, the research project purchased the unit tests and scored them for the teachers. The problem was how to compare the progress pupils made in different reading-level groups when they were using different unit tests. After review of the psychometric issues involved, the best solution was to use the percentages of correct answers as an indicator of achievement. The problem still remained that there were differences between unit tests in the degree of difficulty of questions on the tests.

Major Differences Between the Two Samples of Students in Austin Years I and II

Within the first two weeks of school, in the second year, the observers in the different schools were reporting frequent remarks by the teachers that "the children are different this year". The teachers were therefore asked, in the fourth week of school, to describe particular similarities and differences between their first year and second year classes, using the Class Checklist. The results, for 41 teachers, are shown in Table II-9.

Perhaps the most important fact is the great preponderance of judgments that the second-year classes were, indeed, not like the first-year classes. Overall, 72% of the descriptions were different; only 28% were "the same". Experienced educators are not surprised when this fact is reported; they have experienced many such differences in the characteristics of a student body from one year to another. This great variability has rarely, if ever, been taken into account, however, in reports of educational research studies. Generalizations have been sought about "teacher effects", "school effects", or "pupil effects" on student learning, with the unstated assumption that the population of students in one year is essentially similar to the population in any other year. Since few process-product studies of classroom outcomes have been replicated in the same locations, the tenability of this assumption has not often been tested. Theorists working since 1975 have pointed out that such variability is likely, but there have not yet been many empirical tests of such theorizing.

In the present study, it seems plausible to assume that the major dissimilarities in the two successive student samples, reported by the teachers, may explain many of the differences between year-samples, in the findings reported below. As the Austin teachers saw it, the students in many of the classes in Year II were more interesting to the teacher (58% of the classes), more capable of independent work (53%), more cooperative in group work (51%), more interested in classwork (48%), more comfortable with the school situation (48%), more responsible about classwork (45%), and less disruptive in class (45%). If the students were, indeed, this different, it is not surprising that the observable effects of teaching behavior, and its interactions with student characteristics, were substantially different, in many ways, in the two years. Some findings were the same in both years; but many more were not.

Important implications of these facts are discussed in the final chapter. Suffice it to say that the two student samples, who came from the same neighborhoods and the same elementary schools, showed systematic differences; and that such differences seem likely to be the rule, rather than the exception in most schools. Such a phenomenon renders suspect any generalization about what "students are like" or what kind of instruction will suit them best, until the actual characteristics of a particular group of students comes to be known by first-hand observation.

Daviess County, Kentucky

For this study of teacher-pupil effects, it was desirable to have a sample of teachers from more than one geographic and cultural region of the United States. Many years of collaboration between the TLIS director and J.T. Sandefur, Dean of the College of Education at Western Kentucky University, opened the way for the selection of a field site in Kentucky. Between 1973 and 1974, Dr. Peck visited several possible field sites, one of which was the Daviess County School System, near Owensboro. The Daviess County School System was chosen as a site for the TLIS, partly because a working relationship had already been established between the school system and Dr. Sandefur and Dr. Adams of the Office of Educational Research at Western Kentucky University.

Dr. Peck and Dr. Sandefur first met informally with Daviess County School System officials, and then on September 4 and 17, 1974, formal meetings with the Daviess County School Board took place. The following topics were discussed at these meetings: (1) additional meetings with principals at participating schools; (2) orientation of faculty; (3) distribution of teacher assessment packets; (4) pupil testing and data collection activities; (5) length of time spent in observation of teachers; (6) commitment of teachers; (7) feedback to teachers and administrators; (8) approval of teacher and student instruments; and (9) classroom observation and teacher interviews. Following the discussion of the topics, it was agreed that the principals would initially introduce eligible faculty to the TLIS project. Then an orientation meeting would be provided for the teachers to explain the project in detail.

An orientation meeting for teachers was held on September 17, 1975. Voluntary participation in the project was stressed, and 25 of 35 teachers present at the meeting volunteered. Three teachers elected not to participate because they felt the project would demand too much of their time. Five teachers (all from one school) could not participate because they would not be teaching the same children throughout the year. Because of the loss of these teachers, another school was sought, and subsequently two more teachers were recruited. The Kentucky sample consisted of 27 teachers and their respective classes in four schools: 10 fourth and fifth grade classes at school #1, two fifth grade classes at school #2, four fifth and sixth grade classes at school #3, and 11 sixth and seventh grade classes at school #4.

School	Number of Teachers Present	Number of Teachers Electing to Participate
#1	11	10
#2	5	4
#3	14	11
#4	5	0

As an estimation only, it seemed that school #1 was more representative of "higher" income level, since a larger number of students' parents were in professional fields.

The July 1, 1975 census by the U.S. Census Bureau indicates the population of Madisonville, Kentucky was 17,169, and the estimated per capita money income for that town was $4,155.00. Christian County had a population of 65,594, with an estimated per capita money income of $3,375.00.

Feedback to Teachers

During the two years the TLIS staff worked in the Austin, Texas schools, the classroom teachers expressed great interest in the project and in the information being gathered. The TLIS fieldworkers talked frequently with the teachers and frequently forwarded their questions to the project director. There was a constant effort to clarify the aims of the research, to understand teachers' concerns, and to reassure them of the total anonymity of the data -- particularly, the data they personally supplied.

The teachers were eager to share in the information garnered by the fieldworkers. They were especially interested in the results of the academic tests. The teachers stated they had no solid information on the achievement levels of the students who entered their classes and no reliable criteria for assessing their performance from the beginning to the end of the school term. The teachers hoped that any information they could be given would be helpful to them in planning their teaching strategies, even though they were told initially that no data for individual, named students would be forthcoming.

Feedback was first provided in the late fall or early winter of the first year. In the fall of 1974, the students' names were not reported to the teachers. Each teacher was privately given his/her own class mean scores on the six or seven pupil entry measures and information about the range of class means on each measure. The teachers were most interested in the achievement scores and in their class mean on the Student Evaluation of Teacher instrument. During the winter and spring, several formal and informal meetings were held with teachers to discuss the scores, at their request.

For the second school year, 1975-1976, a great effort was made to furnish teachers with achievement scores early in the term. The project director waived the rule that no information on individual students would be provided to the teachers. The possibility seemed low of contaminating the data; i.e., through teachers knowing the students' initial levels of performance, tailoring programs to help them to achieve more, and thus raising the cumulative post-test scores. Since regressed gain analysis was to be used, this would have little effect on findings. Teachers do this anyway, using whatever performance evidence they pick up. Different teachers could be expected to make different use of the data -- simply one more instance of their variations in style. Any slight risk seemed to be far outweighed by the teachers' legitimate professional interest in using the pre-test scores to meet individual student learning needs more accurately.

The project director provided an oral explanation of the scores to teachers in the schools on each occasion when test results were shared with them. He described the tests and the significance of the scores. He discussed the import of the psychological measures and achievement tests, and what they do and do not demonstrate.

His comments were designed to have two moderating effects. The first was to moderate the significance most teachers attach to the absolute change in scores from the beginning of the year to the end. This was done by telling them that an effective evaluation of an educational program cannot simply be the measure of gain or loss on standardized achievement tests. This issue was discussed back and forth with the teachers. The point was also made that students' own characteristics are likely to have as great or greater an effect on learning than the teachers' efforts (as proved true, by the end of this study).

The teachers were further reminded that the scores presented were averages or proportional representations and did not represent the performance of any individual student or teacher.

Examples of Questions from Teachers

1. How can a teacher change pupils' negative attitudes?
2. How can a teacher find out what peer attitudes are toward a particular pupil?
3. How does a teacher recognize and deal with attitude changes during the year?
4. How can a teacher find out how a particular student feels about himself?
5. Does a student's self-esteem change from the beginning of the year to the end of the school year?
6. Does a pupil's home situation affect his or her schoolwork?
7. How can a teacher establish rapport with a particular student who is difficult to reach?
8. How can a teacher arouse a pupil's interest in school?
9. What are some activities that will influence and motivate high achieving pupils?
10. How can a teacher interest pupils of varying backgrounds, including pupils who are in migrant worker families?
11. How can a teacher make the best use of a student's abilities?
12. What are some effective teaching strategies that improve student study skills?
13. Does showing warmth and affection to students prove beneficial to their achievement?

14. What are some effective teaching strategies that improve student study skills?

15. What are some effective teaching strategies that increase student interest and motivation?

16. What are some effective teaching strategies or methods that improve reading comprehension for fifth and sixth grade students?

17. Has independent ("free") reading proven effective for student achievement?

18. How can teachers use achievement scores to analyze student needs?

Teacher Feedback - Austin, Texas

The Austin teachers received six separate reports of information about their students' performance on the various tests administered for the Teaching-Learning Interaction Study during 1974, 1975, and 1976.

In February 1975, teachers received computer printout reports of their classes' scores on the Fall 1974 pre-test administration of three student self-report instruments and an academic achievement test. A single printout sheet accounted for the three self-report instruments, Student Sentence Completion (Attitude and Coping Scales), School Sentiment Index (Teaching, Learning and School Scales and total score), and Piers-Harris Self-Concept scale.

Information for all Austin classes was contained on that single sheet. The schools and individual classes were numbered, rather than named, to insure that all data would remain confidential. Teachers were provided with the lowest score, highest score, and mean score on each instrument or scale for their class, their school, and the entire Austin sample.

Academic achievement in the Language Arts and Social Studies was measured using the Comprehensive Tests of Basic Skills (CTBS). Data for the CTBS was presented to each teacher on a separate printout that presented scores for each classroom, each school, and the entire Austin sample. The schools and classes were code numbered, to keep all the feedback data confidential. The printout reported the number of pupils taking the tests (for class, school, and city) and the lowest score, highest score, and mean score for the Language Arts or the Social Studies section. A class that was tested with the CTBS took either the Language Arts (Language Mechanics and Language Expression scales) or the Social Studies section.

The printout carried an excerpt from the Examiner's Manual describing the rationale and classification system of the CTBS and outlining the form and objectives of each section.

In October 1975, Austin teachers received brief summaries of their classes' pre-test and post-test performances on five instruments administered in the Teaching-Learning Interaction Study during the first year data collection periods, Fall 1974 and Spring 1975. They received information on the following measures: McGraw-Hill's Comprehensive Tests of Basic Skills, the Piers-Harris Self-Concept Scale, the School Sentiment Index, the Student Sentence Completion: Attitude scale and Coping scale, and the Student Evaluation of Teaching.

Each teacher received a form with his or her name written in and the average pre-test and post-test scores (and the differences) on each instrument for the class and for the entire Austin sample. The form carried the caveat:

> Confidential Information: Distribution of this report is restricted to one copy for the individual teacher of the class from which student data was collected.

Scores were presented in a way that would discourage teachers from evaluating their presumed teaching skills by inference from classes' performance on the tests. The teachers were advised that the scores were presented as a class average for each instrument and could be compared to the average scores for all 53 participating Austin classes. They were cautioned, however, that the class average did not necessarily represent the many changes in individual scores that might have occurred over the school term. They were reminded that the averages of all classes studied in Austin showed relatively little overall change during the year on any of the instruments, even on the achievement tests.

In December, 1975, each Austin teacher participating in the study received a computer printout with his/her class's scores on the Gates-MacGinitie Reading Test administered in Fall 1975. The pre-test scores were reported by student name. They included both raw scores and grade level equivalents for the instrument's subtests (Reading Speed and Accuracy, Vocabulary, and Comprehension).

The printout gave the meaning and range of scores for the subtests and conveyed the caution that extreme scores might be of questionable validity. An extremely low score, it was pointed out, might have been due to a student not understanding what he/she was to do. An extremely high score (grade equivalent of 10.0 or 11.0) might represent a student who would score even higher on a more advanced test, which has more room at the top.

At the end of the 1975-1976 school year, teachers were told which students showed gains or losses that significantly deviated from their classmates' performance on the Gates-MacGinitie Reading Tests. Each teacher received a computer printout listing the members of his or her class and their pre-test and post-test scores, for each of the four subsections of the reading test. If the difference between a student's pre- and post-test scores for a specific subsection was significantly less than the average for the rest of the class, a minus appeared next to the post-test score for that section. If the difference for a particular section was considerably greater than the class average, a plus appeared next to that post-test score. This was explained in two notes that followed the listing.

In addition, a table showed the quartile distribution of raw pre-test and post-test scores for each subsection of the test using the individual class' scores. The explanation of the table included descriptions of each subsection of the Gates-MacGinitie Reading Tests.

At their request, teachers received reports on the Student Evaluation of Teaching (SET) instrument in Spring, 1976. Each teacher was given the proportion of students' agreement with each of the three response options (yes, sometimes, no) for each of the eight SET items. The proportion was based on the number of students who responded to each question, rather than on the total number in each class, and was reported separately for the Fall and Spring administrations.

Two notes were appended to the computer printouts furnished to the teachers. They were advised that it is typical that scores on all types of rating scales usually become less positive during the course of the school year. It was also pointed out that, because of wording, on two items a yes response should be considered a negative opinion, and a no response a positive opinion.

Each teacher received a report for his or her own class, with no information about other classes or about the entire Austin sample. Because the students were assured that the teacher would not see their answers to the questionnaire, the students' responses were not reported individually.

Feedback on the SET was presented in this format to protect the confidentiality of students' responses and to inhibit any feelings of involvement in a "popularity contest" that the teachers might bring to this rating.

Teacher Feedback - Daviess County, Kentucky

At the end of the data collection period, teachers in the Kentucky sample privately received computer printouts relating their own classes' performance on four post-test instruments: Student Evaluation of Teaching, Piers-Harris Self-Concept Scale, School Sentiment Index, and Student Sentence Completion. Each teacher received a summary of the proportion of students who agreed with the various response alternatives for each item on those scales. The teacher received information for his or her class only; there was no school or total-sample summary. The project staff discussed these findings with individual teachers, on request.

Table II-1

Number of Teachers in Each School

Schools	Austin Year I	Kentucky Year I	Year II	Teachers Common to Austin Year I and II**
No. 1	28	10 (5 Fourth Grade) (5 Fifth Grade)	26	22
No. 2	8	2 (Fifth Grade)		0
No. 3	13	4 (2 Fifth Grade) (2 Sixth Grade)	15*	9
No. 4	4	11 (5 Sixth Grade) (6 Seventh Grade)	2	2
Total	53	27	43	33

* Two teachers taught two classes each

** Thirty-three of the teachers in Austin I and Austin II were the same persons

Table II-2

Teacher Characteristics: Sex and Ethnicity

	Austin Year I		Kentucky Year I		Austin Year II	
	M	F	M	F	M	F
Anglo	5	41	5	22	4	33
Black	3	3	0	0	3	2
Chicano	0	1	0	0	0	1
	8	45	5	22	7	36

Table II-3

Teacher Characteristics: Age

	Austin Year I	Kentucky Year I	Austin Year II
Age Categories:			
20-25	17	4	12
26-29	10	4	10
30-39	8	10	7
40-49	12	6	9
50-60	6	0	5
Missing	0	3	0
	53	27	43

Table II-4

Teacher Characteristics: Educational Degrees

Degree	Austin Year I	Kentucky Year I	Austin Year II
B.A.	43(81%)	19(70%)	30(70%)
M.A.	10(19%)	8(30%)	13(30%)

Table II-5

Teacher Characteristics: Years of Teaching Experience

Years of Teaching Categories:	Austin Year I	Kentucky Year I	Austin Year II	Total
1	10	0	7	17
2 - 5	15	10	12	37
6 -10	12	6	8	26
11 -20	9	10	7	26
21 -30	5	1	6	12
31 -40	2	0	3	5
				123

Table II-6

Number of Pupils in Schools

		Austin Year I	Kentucky Year I	Austin Year II	Total
Schools					
No. 1	Males	443(51%)	157(53%)	436(49%)	
	Females	427(49%)	138(47%)	445(51%)	
	Total	870	295	881	2046
No. 2	Males	122(52%)	35(55%)		
	Females	114(48%)	29(45%)		
	Total	236	64		300
No, 3	Males	227(53%)	53(54%)	300(52%)	
	Females	202(47%)	45(46%)	275(48%)	
	Total	429	98	575	1102
No. 4	Males	55(47%)	188(57%)	36(56%)	
	Females	62(53%)	142(43%)	28(44%)	
	Total	117	330	64	511
		1652	787	1520	3959

Table II-7

Pupil Characteristics: Sex and Ethnicity

		Austin Year I	Kentucky Year I	Austin Year II	Total
Anglo:	Male	588(36%)*	432(55%)	576(38%)	1596(40%)
	Female	557(34%)	353(45%)	562(37%)	1472(37%)
Black:	Male	131(8%)	1(.1%)	85(6%)	217(5%)
	Female	114(7%)	1(.1%)	95(6%)	210(5%)
Chicano:	Male	125(7%)		106(7%)	231(6%)
	Female	132(8%)		89(6%)	221(6%)
Other:	Male	3(.2%)		5(.3%)	8(.2%)
	Female	2(.1%)		2(.1%)	4(.1%)
		1652	787	1520	3959

---

* = Percentage of Year Total

90

Table II-8

Pupil Characteristics: SES and Ethnicity

	Austin Year I			Kentucky Year I			Austin Year II		
	High*	Med.	Low	High	Med.	Low	High	Med.	Low
Anglo	295	477	195	153	345	236	291	350	160
Blacks	11	71	111	0	1	1	20	34	84
Chicano	10	74	104	0	0	0	23	41	94
Other	1	3	0	0	0	0	4	0	2
	317 (23%)	625 (46%)	410 (30%)	153 (21%)	346 (47%)	231 (32%)	438 (36%)	425 (35%)	340 (28%)

---

[*] SES differences approximate these between working class, lower-middle class and upper-middle class; see text for full description.

Table II-9

Pupil Characteristics: Ethnicities in Each School

	Austin Year I	Kentucky Year I	Austin Year II
School No.1:			
Anglo	597(69%)	295 (100%)	635 (72%)
Black	171(20%)		126 (14%)
Chicano	101(11%)		115 (13%)
Other	1(.1%)		5 (.6%)
	870	295	881
School No.2:			
Anglo	119(50%)	62 (97%)	
Black	28(12%)	2 (3%)	
Chicano	88(37%)		
Other	1(.4%)		
	236	64	
School No.3:			
Anglo	348(81%)	98 (100%)	458 (80%)
Black	32(7%)		49 (8%)
Chicano	47(11%)		67 (12%)
Other	2(.5%)		1 (.2%)
	429	98	575
School No.4:			
Anglo	81(69%)	330 (100%)	45 (70%)
Black	14(12%)		5 (8%)
Chicano	21(18%)		13 (20%)
Other	1(.9%)		1 (2%)
	117(.9%)	330	64 (2%)

Table II-10

Pupil Characteristics: SES in Each School

School	SES	Austin Year I	Kentucky Year I	Austin Year II
No. 1				
	High	160 (21%)	87 (31%)	204 (29%)
	Med.	369 (49%)	136 (48%)	272 (39%)
	Low	221 (30%)	61 (21%)	225 (32%)
No. 2				
	High	17 (10%)	8 (13%	
	Med.	63 (39%)	30 (48%)	
	Low	84 (51%)	24 (39%)	
No. 3				
	High	106 (30%)	13 (14%)	202 (45%)
	Med.	180 (50%)	40 (42%)	147 (33%)
	Low	73 (20%)	42 (44%)	98 (22%)
No. 4				
	High	34 (43%)	45 (15%)	32 (58%)
	Med.	13 (17%)	140 (47%)	6 (11%)
	Low	32 (40%)	111 (38%)	17 (31%)

CHAPTER III

INSTRUMENTATION

The choice of instruments, and their revision, were critical first steps in the project. The first step was to find or construct appropriate instruments which measured the desired variables. After an instrument search, some instruments were adopted as they existed, others were modified for use, and still others were developed by the TLIS staff. Between the first and second year of testing, some of the instruments were slightly revised, to make certain items more understandable or to achieve stronger psychometric properties.

The following section describes the instrument search, the instruments which were chosen, and the variables they measured. A detailed description follows of each instrument used in the study, including a discussion of the procedures for data collection, and general testing instructions for each measure.

Instrument Search

In January 1974, the staff began a search for machine-scorable, self-report instruments that would measure selected teacher and student variables that would be likely to affect designated student outcomes. Component variables were sorted into the cells of a 3x3 grid of skills (cognitive, affective, and coping skills, following Bloom, et al, 1956; Krathwohl, et al, 1964; and Peck, 1967) and behavioral domains (interpersonal, intrapersonal, and career-related knowledge), (Figure 1). The basic criteria for selecting instruments were content area, machine scorability, adequate reported validity and reliability coefficients, and appropriateness for sixth graders.

Such instruments are not the ideal way to assess the individual characteristics that the study proposed to investigate. Behavioral measures, including depth-interview material, would be far more desirable for assessing coping skills, attitudes, self-esteem, and even academic skills (see Peck, Payne and Cisneros-Solis, 1982). Self-report measures have quite imperfect validity for estimating these actual characteristics. Free-response instruments display more of the individual-at-work than do forced-choice instruments. The sole justification for choosing self-report, machine-scorable instruments was that of cost. Not only was this the only affordable approach, with a sample large enough to sustain the multivariate design of the study; it is the only approach to a mass-assessment system that a school district might be willing to finance, if it proved to have some useful properties. Under these circumstances, whatever relationships the measures might demonstrate in this study are probably underestimates of the true relationships among the variables which the instruments are designed to represent.

The search and analysis process for identifying usable instruments was arranged in a cost-efficient series of increasingly fine screening procedures. An instrument evaluation sheet was developed to indicate quickly critical features of a given instrument and to expedite the writing of instrument descriptions. The evaluation sheet included the following items: (1) the name of the instrument, (2) author ('s') name(s), (3) cost of the instrument, (4) length of the test, (5) time required to administer the test, (6) the address of the disseminators of

GOALS OF EDUCATION

(Applicable to Teachers as Well as Students)

	Career Related Domain	Interpersonal Domain	Intrapersonal Domain
Cognitive Skills	Knowledge of facts Knowledge of ways of dealing with specific intellectual tasks Knowledge of systems for conceptualizing, ordering, manipulating, processing, studying Ability to analyze problems Ability to create new solutions	Knowledge of others' individual natures and dynamics Knowledge of social skills and customs Understanding; ability to analyze social situations, dynamics; awareness of how others see oneself Ability to perceive others' thoughts, emotions, needs Ability to differentiate social situations, personal and cultural styles, and determine appropriate interaction style	Accurate self-awareness of mind, body, feelings, actions Awareness of own values, moral principles, goals, and their coherence Awareness of strengths, weaknesses of character, personality Knowledge of ways of coming to self-realization, of expressing oneself and evaluating self Mapping a clear career-path (future plans, awareness of own strengths, weaknesses, and needs)
Affective Skills	Taking pride in doing work well; a sense of responsibility for creating a good end result Valuing learning and knowledge, in general; having an active interest in some specific fields of knowledge Valuing the "truth ethic", honesty, wanting to find truth Feeling comfortable in work-focused settings Developing an emotional commitment to a career	Sense of others' feelings: empathy Positive attitudes toward others Having a flexible, versatile repertoire of realistic feelings toward others Valuing human intimacy Caring about others' well-being; altruism; a sense of moral responsibility Acceptant of constructive superior-subordinate and co-worker relationships	Self-esteem: attitudes about self, including one's performance in all cells: evaluation of accuracy of perceptions; correctness of values; comfort or discomfort with one's feelings; adequacy of knowledge or social skills; etc. Integration of "truth ethic" into self-evaluation and into one's choice of actions Achieving reasonably coherent, harmonious feelings about the major issues in one's life Developing a coherent, personal system of values and goals Developing spirituality; a religious or cosmic sense of self/Other relatedness
Coping Skills	Developing good work habits: vigorous, unstinting, goal-directed effort Pursuing a coherent career-plan (whether consciously or intuitively) Increasing precision, efficiency and integration of career skills, through self-analysis, self-correction, and purposeful improvement Increasing one's insight into the "larger picture" into which one's own work fits: the many different problems involved and skills required to make the whole system work; putting these insights to work Developing the intellectual and emotional flexibility to change careers if it becomes either desirable or necessary	Responding with interest and empathy to others' feelings, interests and values Responding with open-minded attention to others' ideas and suggestions Reconciling one's own and others' wishes, to achieve a mutually tolerable outcome Fostering others' self-esteem Dealing with others in a trustworthy, caring, ethically responsible way	Ability to acknowledge and express emotions, to respond to events and people sincerely Ability to act on one's values and principles Ability to care for one's own real physical, emotional, and intellectual needs Ability to cope with anxiety Achieving a well-balanced personality: congruent in thought, feeling and action

Figure 1

BEST COPY AVAILABLE

the test, (7) date of copyright, (8) explanation of scoring, (9) test reliability, (10) validity coefficients, and (11) a general description of the instrument.

Computerized searches were conducted to locate references to instruments that are indexed in the ERIC CIJE (Current Index to Journals in Education) and the ERIC RIE (Research in Education) systems. As documents were located that included instruments or references to instruments, reference lists in those documents were systematically monitored, often leading researchers to additional sources. In addition, all books pertaining to instruments in The University of Texas system libraries were searched. Two UCLA sources were also reviewed by the project director: CSE-RBS Test Evaluations: Tests of Higher-Order Cognitive, Affective and Interpersonal Skills (Hoepfner, et al, 1972), and Elementary School Test Evaluation (Hoepfner, et al, 1970).

Four hundred and nine instruments were surveyed in this extensive search . Of the 409, only 55 (13.4%) received high ratings for both reliability and validity. Thirty-nine instruments received a high rating for either reliability or validity; 284 instruments were considered to be low in both validity and reliability. For the remaining 31 instruments, information was incomplete or unavailable, and they were dismissed. Listings and classifications of instruments are appended to this report (see Appendix D). (See Figures 2 and 3.)

Instruments and Variables

The general schedule for administering the student instruments in the Teaching-Learning Interaction Study specified that measures be gathered in fall (pre-test) and in spring (post-test). The teacher instruments were collected only once (except for retest reliability samples). Classroom observations were carried on throughout the school year. The post-test period for test-retest reliability computations followed the fall pre-test administrations by three weeks. Figure 4 shows the schedule of data collection.

The instruments used in the first year of data collection, and the variables they yield, will be discussed in this order: demographic variables, student attitude instruments, student achievement instruments, teacher demographic variables, teacher attitude instruments, classroom observation measures, and teacher interview systems. The instruments and variables of the second year of data collection are introduced in a similar order; modifications of Year I instruments for use in Year II, and the addition of new measures, are noted in the text.

Student Measures

Student's ID Number. Provides coded information: year of study, school attended, class/teacher code, sex, and ethnicity.

Student Biographical Form. Provides information: child's name, age and birthdate, birth order and other information on siblings, father's and mother's education and occupations.

Variables: sex, ethnicity, socioeconomic status, father's occupation, mother's occupation, father's education, mother's education

Student Attendance Form. Provides a record of each pupil's name and the total number of days the child was absent from school during the school year.

Variable: (ABS) days absent

TLI INSTRUMENTS CLASSIFIED BY SKILL DOMAINS

	Career-Related		Interpersonal		Intrapersonal	
	Pupil	Teacher	Pupil	Teacher	Pupil	Teacher
COGNITIVE	Achievement Tests COS-Fluency, Accuracy Unit Tests CORF anecdotes Teacher Interviews	COR-SI COS-Appropriate Level COS-Accuracy CORF Teacher Interviews	CORF Teacher Interviews	Interviewer Perceptions: Diagnostic, Prescriptive Skills CORF Teacher Interviews	BRS-SRx BRS-OR BRS-SRx Stud.Descrip. and similar comparisons to assess accuracy of self-perception CORF Teacher Interviews	ASD, VOTxCOR, etc. to assess accuracy of perception of different aspects of self CORF Teacher Interviews
AFFECTIVE	SSI SSC-A SET (Indiv.score) COS-Affect CORF Teacher Interviews	VOT-Attitude CORF Teacher Interviews	SSI SSC-A CORF Teacher Interviews	ASD-Behavior, Individualism, Introversion Concerns Level COR-KU COS-Affect COR-P (class score) CORF Teacher Interviews	P-H, SSD How This Class Makes Me Feel (individual score) CORF Teacher Interviews	ASD-Attitude ASD-Attractiveness CORF Teacher Interviews
COPING SKILLS	BRS-OR SSC-C Student Description COS-TOT, Act/Pass. Class Means COR-P Class Checklist CORF Teacher Interviews	VOT-Coping ASD-Efficiency COR-SO COS-TOT Interview: Follow-Through SET(class mean) CORF Teacher Interviews	BRS-OR,SR Student Description CORF anecdotes Class Means COR-P Class Checklist CORF Teacher Interviews	How This Class Makes Me Feel (class mean) CORF Teacher Interviews	BRS-OR,SR Student Description CORF Teacher Interviews	ASD-Anxiety CORF Teacher Interviews

Figure 2

BEST COPY AVAILABLE

TLI INSTRUMENTATION DESIGN

	Presage Characteristic Measures (Pretests)	Process Measures (All teachers and Special Study Students, except where noted) Behavior Measures	 Behavior Ratings	Outcome Measures (Posttests)
TEACHERS	BIO: Ethnicity, Sex, Age, SES of Family of origin, Years of Teaching Experience; Degree Attained DI: (some cases) ASD: Attitude, Behavior, Efficiency, Introversion, Anxiety, Individualism, Attractiveness VOT: Coping and Attitude SET PRE: class mean Concerns Level	Year 1 CORF: descriptive data COS: source of CORF material Year 2 COS: TOT; Affect; Accuracy; Appropriate Level; Source of CORF material CORF: descriptions Interviews: descriptions	Year 1 COR - EU, SO, [illegible] Year 2 COR - EU, SO, SI Interviewer Perceptions: Diagnostic, Prescriptive, Follow Through Skills Scales	SET: class mean HCMF: class mean (year 2 only)
STUDENTS	BIO: School, grade, class, ethnicity, sex, age, SES Achievement: standardized test (CTBS, MAT, GHG) Coping Skill: SSC-C, BRS-OR,SR Attitudes: SSC-A, SSI, SET Self-esteem: P-H (SSD)	Year 1 COS: TOT CORF: anecdotal material Final Interview: teacher remarks on Special Study Students Year 2 COS: TOT; Accuracy: Rd.Fluency; Affect; Active/Passive CORF: Anecdotal material Teacher Interviews: Teacher remarks about students Achievement: Unit Tests (Austin only, all students)	Student Description: teacher rating of Special Study Students on BRS and COR P items) SD - Status: Year 1 and Year 2 SD - Change: Year 2 only; how has student changed over the school year? Attendance	Achievement: standardized tests Coping Skill: SSC-C; BRS-OR,SR(Year 2 only) Attitude: SSC-A, SSI, SET Self-esteem: P-H (SSD); HCMF(Year 2 only)
CLASS	Achievement: class means on standardized tests Coping Skill: class means on SSC-C, BRS-OR,SR Attitude: class means on SSC-A, SSI, SET Self-esteem: class mean on P-H (SSD)	CORF: class descriptions COS: class average TOT, Accuracy, Rd.Fluency, Affect, Active/Passive Achievement: reading group means on Unit Tests	(Full Class) COR-Pupil factor Class Checklist - Similarity Index	Achievement: class means on standardized Tests Coping Skill: class means on SSC-C; BRS-OR,SR (Year 2 only) Attitudes: class mean on SSC-A, SSI, SET Self-esteem: class mean on P-H (SSD)

Figure 3

BEST COPY AVAILABLE

TITLES, ABBREVIATIONS AND ADMINISTRATION PERIODS OF INSTRUMENTS

	Title	Abbreviations	Year 1 fall	Year 1 spring	Year 2 fall	Year 2 spring	Notes
TEACHERS	Teacher Biographical Form		x		x (new teachers only)		
	Adjective Self-Description	ASD	x		x (new teachers only)		
	Views of Teaching, Attitude and Coping Scales	VOT -A,C	x		x (new teachers only)		
	Directed Imagination	DI	x				(Not all teachers completed DI)
	Student Description	SD		x		x	(Ratings on Special Study students)
	Class Checklist			x		x	
	School Preference Questionnaire			x			
	Teacher Concerns Questionnaire					x	(Austin reading teachers only)
	Teacher Needs Survey			x			(Austin only)
	Teacher Reaction Form					x	
	Class Roster		x	x	x	x	
	Student Attendance Form			x		x	
STUDENTS	Student Biographical Form		x		x		
	Student Sentence Completion, Attitude and Coping Scales	SSC-A,C	x	x	x	x	
	Student Evaluation of Teaching	SET	x	x	x	x	
	School Sentiment Index	SSI	x	x	x	x	
	Behavior Rating Scale -Self-Report Other-Report	BRS-SR,OR	x		x	x	
	Piers-Harris Children's Self-Concept Scale	P-H	x	x			(P-H was modified and renamed)
	Student Self-Description	SSD			x	x	
	How This Class Makes Me Feel	HCMF				x	
	Comprehensive Tests of Basic Skills	CTBS	x	x	x	x	(Yr.1-all students; Yr.2 - some classes)
	Gates-MacGinitie Reading Test	GMG			x	x	(Austin only)
	Metropolitan Achievement Tests	MAT			x	x	(Kentucky only)
	Unit Tests				continuous measures		(Yr.-2 Austin only)
OBSERVERS	Classroom Observation Record: Kindly-understanding, Systematic -organized, Stimulating- inventive factors	COR-KU,SO,SI		x		x	
	Classroom Observation System	COS		x		x	(revised; Yr.2. Yields several teacher/pupil vars)
	Classroom Observation Report Form	CORF		x		x	
	Interviews (initial, weekly, final)			x		x	
	Interviewer's Perceptions Diagnostic Prescriptive, Follow Through Skills	IP-D,P,FT				x	(Rating of teacher's diagnostic, prescriptive and follow through skills)

Figure 4

BEST COPY AVAILABLE

School Sentiment Index. Consists of items to which student responds "true" or "false", yielding a single score of attitude toward school, based on three dimensions (i.e., teacher, learning, and school in general). Items range from general statements about school to teacher-specific statements.

Variable: SSI - score regarding attitude toward school

Piers-Harris Children's Self-Concept/Student Self-Description (P-H used in study Year I, SSD used in Year II). Consists of statements about the self (evaluative) and the self-in-school (coping), responded to with a yes/no or true/false, depending on the form. The SSD is a shortened version of the P-H.

Variable: self-esteem

Student Evaluation of Teaching. Student expresses agreement or disagreement with a set of descriptive statements about the teacher. Responses on a Likert scale reflect a single dimension of attitude toward teachers.

Variable: evaluative description of the teacher's behavior. The class mean score is used to represent the perception of the teacher by the class as a whole.

Student Sentence Completion. A self-report instrument consisting of items describing (a) reaction and (b) attitudes to problems of achivement, interpersonal relations, relations with authority, handling anxiety, and handling aggressive impulses. Each item is followed by four alternative completions. Two scales, attitude toward life and self-described coping skill, are scored.

Variables: SSC - attitude, SSC - coping

Behavior Rating Scale. This instrument includes peer- and self-ratings of pupils' school adjustment. Mean item scores are computed from nine peer ratings on 13 items, and a factor score is derived therefrom.

Variables: BRS - school coping skill (self-rated), BRS - school coping skill (other-rated)

How This Class Makes Me Feel. A self-report questionnaire on which the student responds "true" or "false" to questions that describe how he/she sees the personal impact of a particular teacher's class, over the year.

Student Description. The teacher was asked to describe particular pre-selected students ("special study students") by checking a box on a Likert-type adjectival item scales. The form features 22 descriptor pairs. Nine of them are the pupil-descriptive items in Ryan's Classroom Observation Record; 12 are the same as the peer BRS items; and one is an estimate of the pupil's self-esteem. One section of the instrument calls for a general assessment of the student; a second section calls for an assessment of the student's change over the school year on each rated dimension.

Comprehensive Tests of Basic Skills are standardized achievement tests. Scores on language arts (mechanics and expression), or social studies, were used in Austin in Year I, depending on the subject matter in the classes observed.

Gates-MacGinitie Reading Tests are a standardized reading test, scored on three sections: speed and accuracy, vocabulary, and comprehension. A single total score was also available and was used to assess achievement in Austin in Year II.

Unit Reading Tests were the reading textbook tests for different sections in the reading book. These were used as criteria for reading achievement in Austin in Year II.

Teacher Measures

Teacher Biographical Form. The teachers provide information about their education, experience, home, and family. A self-assessment section of four questions asks them to write short statements about their "greatest strengths as people", and how these relate to their effectiveness as teachers; what the most important thing in their life is; what skills or aspects of their teaching they would like to improve; and what their plans for the future might be.

Variables: age, sex, ethnicity, education, and years of teaching

Class Checklist. The class checklist was employed during both years of the study. With it, the teacher compares his/her present class of students with the class of the previous year, using a set of 10 descriptive statements and "more", "less", "about the same" as response alternatives. This instrument describes similarities and differences in the maturity, attitudes, and behavior of classes in successive years.

Concerns Questionnaire. A self-report inventory designed to measure teachers' attitudes toward innovations: in this case, the unit reading tests employed as criterion-referenced achievement measures in 11 classes in Austin, Year II. The questionnaire is in the form of a series of declarative sentences which the teacher rates for relevance to him or her using Likert-scaled responses. The questionnaire measures, on seven independent scales, the seven stages of concerns posited in the Concerns-Based Adoption Model (CBAM), ranging from general awareness, to use and interest in its effects, to ideas about change of benefits, structure, use, etc.

Adjective Self-Description. The ASD consists of 56 Likert-scaled adjectival items which the subjects rate on applicability of the descriptions to themselves. Seven factors are scored: attitude, behavior, efficiency, introversion, anxiety, ideology, and attractiveness.

Teacher Reaction Form. The form was completed once by the teachers, at the end of the project in May 1976. It indicated whether the project activities did or did not change or interfere with the normal functioning of the classroom. All teachers reported that the activities did not materially affect their or their students' behavior. Teachers responded to three questions about the project activities, using Likert scales, and were asked to comment further if they wished.

Teacher Needs Survey. Teachers were asked to indicate which of 20 resources or materials listed (or any they might add) would improve their effectiveness as teachers. The information was forwarded to the school administration. This was a service to the teachers, not part of the research plan of the study.

Observation Measures

Classroom Observation Record is an observation-based assessment of teaching style and student behavior on bipolar scales, one set for students and one set for the teacher.

Variables: Teacher Kindly - Understanding (COR-KU), Teacher Stimulating - Inventive (COR-SI), Teacher Systematic-Organized

(COR-SO), Pupil Classroom Behavior (COR-P)

Classroom Observation Record
Teacher Characteristics Study

Teacher________________________No.______Sex______Class or Subject__________Date________
City________________School________________Time______Observer______________

PUPIL BEHAVIOR

1.	Apathetic	1	2	3	4	5	6	7	N	Alert
2.	Obstructive	1	2	3	4	5	6	7	N	Responsible
3.	Uncertain	1	2	3	4	5	6	7	N	Confident
4.	Dependent	1	2	3	4	5	6	7	N	Initiating

Teacher Behavior

5.	Partial	1	2	3	4	5	6	7	N	Fair
6.	Autocratic	1	2	3	4	5	6	7	N	Democratic
7.	Aloof	1	2	3	4	5	6	7	N	Responsive
8.	Restricted	1	2	3	4	5	6	7	N	Understanding
9.	Harsh	1	2	3	4	5	6	7	N	Kindly
10.	Dull	1	2	3	4	5	6	7	N	Stimulating
11.	Stereotyped	1	2	3	4	5	6	7	N	Original
12.	Apathetic	1	2	3	4	5	6	7	N	Alert
13.	Unimpressive	1	2	3	4	5	6	7	N	Attractive
14.	Evading	1	2	3	4	5	6	7	N	Responsible
15.	Erratic	1	2	3	4	5	6	7	N	Steady
16.	Excitable	1	2	3	4	5	6	7	N	Poised
17.	Uncertain	1	2	3	4	5	6	7	N	Confident
18.	Disorganized	1	2	3	4	5	6	7	N	Systematic
19.	Inflexible	1	2	3	4	5	6	7	N	Adaptable
20.	Pessimistic	1	2	3	4	5	6	7	N	Optimistic
21.	Immature	1	2	3	4	5	6	7	N	Integrated
22.	Narrow	1	2	3	4	5	6	7	N	Broad

Glossary

(To be used with classroom observation record.)

Pupil Behaviors

1. Apathetic-Alert Pupil Behavior

Apathetic	Alert
1. Listless	1. Appear anxious to recite and participate.
2. Bored-acting	2. Watch teacher attentively.
3. Enter into activities half-heartedly.	3. Work concentratedly.
4. Restless.	4. Seem to respond eagerly.
5. Attention wanders.	5. Prompt and ready to take part in activites when they begin.
6. Slow in getting under way.	

2. Obstructive-Responsible Pupil Behavior

Obstructive	Responsible
1. Rude to one another and/or to teacher.	1. Courteous, co-operative, friendly with each other and with teacher.
2. Interrupting; demanding attention; disturbing.	2. Complete assignments without complaining or unhappiness.
3. Obstinate; sullen.	3. Controlled voices.
4. Refusal to participate.	4. Received help and criticism attentively.
5. Quarrelsome; irritable.	5. Asked for help when needed.
6. Engaged in name-calling and/or tattling.	6. Orderly without specific directions from teacher.
7. Unprepared.	7. Prepare.

3. Uncertain-Confident Pupil Behavior

Uncertain	Confident
1. Seem afraid to try; unsure.	1. Seem anxious to try new problems or activities.
2. Hesitant; restrained.	2. Undisturbed by mistakes.
3. Appear embarrassed.	3. Volunteer to recite.
4. Frequent display of nervous habits, nail-biting, etc.	4. Enter freely into activities.
5. Appear shy and timid.	5. Appear relaxed.
6. Hesitant and/or stammering speech.	6. Speak with assurance.

4. Dependent-Initiating Pupil Behavior

Dependent	Initiating
1. Rely on teacher for explicit directions.	1. Volunteer ideas and suggestions.
2. Show little ability to work things out for selves.	2. Showed resourcefulness.
3. Unable to proceed when initiative called for.	3. Take lead willingly.
4. Appear reluctant to take lead or to accept responsibility.	4. Assume responsibilities without evasion.

Teacher Behaviors

5. Partial-Fair Teacher Behavior

Partial	Fair
1. Repeatedly slighted a pupil.	1. Treated all pupils approximately equally.
2. Corrected or criticized certain pupils repeatedly.	2. In case of controversy pupil allowed to explain his side.
3. Repeatedly gave a pupil special advantages.	3. Distributed attention to many pupils.
4. Gave most attention to one or a few pupils.	4. Rotated leadership impartially.
5. Showed prejudice (favorable or unfavorable) towards some social, racial, or religious groups.	5. Based criticism or praise on factual evidence, not hearsay.
6. Expressed suspicion of motives of a pupil.	

6. Autocratic-Democratic Teacher Behavior

Autocratic	Democratic
1. Tells pupils each step to take.	1. Guided pupils without being mandatory.
2. Intolerant of pupils' ideas.	2. Exchanged ideas with pupils.
3. Mandatory in giving directions; orders to be obeyed at once.	3. Encouraged (asked for) pupil opinion.
4. Interrupted pupils although their discussion was relevant.	4. Encouraged pupils to make own decisions.
5. Always directed rather than participated.	5. Entered into activities without domination.

7. Aloof-Responsive Teacher Behavior

Aloof	Responsive
1. Stiff and formal in relations with pupils.	1. Approachable to all pupils.
2. Apart; removed from class activity.	2. Participates in class activity.
3. Condescending to pupils.	3. Responded to reasonable requests and/or questions.
4. Routine and subject matter only concern; pupils as persons ignored.	4. Speaks to pupils as equals.
5. Referred to pupil as "this child" or "that child."	5. Commends effort.
	6. Gives encouragement.
	7. Recognized individual differences.

8. Restricted-Understanding Teacher Behavior

Restricted	Understanding
1. Recognized only academic accomplishments of pupils; no concern for personal problems.	1. Showed awareness of a pupil's personal emotional problems and needs.
2. Completely unsympathetic	2. Was tolerant of error on part of pupil.
3. Called attention only to very good or very poor work.	3. Patient with a pupil beyond ordinary limits of patience.
4. Was impatient with a pupil.	4. Showed what appeared to be sincere sympathy with a pupils' viewpoint.

9. Harsh-Kindly Teacher Behavior

Harsh	Kindly
1. Hypercritical; fault-finding.	1. Goes out of way to be pleasant and/or to help pupils; friendly.
2. Cross; curt.	2. Gave a pupil a deserved compliment.
3. Depreciated pupil's efforts; was sarcastic.	3. Found good things in pupil's to call attention to.
4. Scolds a great deal.	4. Seemed to show sincere concern for a pupil's personal problem.
5. Lost temper.	5. Showed affection without being demonstrative.
6. Used threats.	6. Disengaged self from a pupil without bluntness.
7. Permitted pupils to laugh at mistakes of others.	

10. Dull-Stimulating Teacher Behavior

Dull	Stimulating
1. Uninteresting, monotonous explanations.	1. Highly interesting presentation; gets and holds attention without being flashy.
2. Assignments provide little or no motivation.	2. Clever and witty, though not smart-alecky or wise-cracking.
3. Fails to provide challenge.	3. Enthusiastic; animated.
4. Lack of animation.	4. Assignments challenging.
5. Failed to capitalize on pupil interests.	5. Took advantage of pupil interests.
6. Pedantic, boring.	6. Brought lesson successfully to a climax.
7. Lacks enthusiasm; bored acting.	7. Seemed to provoke thinking.

11. Stereotyped-Original Teacher Behavior

Stereotyped	Original
1. Used routine procedures without variation.	1. Used what seemed to be original and relatively unique devices to aid instruction.
2. Would not depart from procedure to take advantage of a relevant question or situation.	2. Tried new materials or methods.
3. Presentation seemed unimaginative.	3. Seemed imaginative and able to develop presentation around a question or situation.
4. Not resourceful in answering questions or providing explanations.	4. Resourceful in answering questions; had many pertinent illustrations available.

12. Apathetic-Alert Teacher Behavior

Apathetic	Alert
1. Seemed listless; languid; lacked enthusiasm.	1. Appeared buoyant; wide-awake; enthusiastic about activity of the moment.
2. Seemed bored by pupils.	2. Kept constructively busy.
3. Passive in response to pupils.	3. Gave attention to, and seemed interested in, what was going on in class.
4. Seemed preoccupied.	4. Prompt to "pick up" class when pupils' attention showed signs of lagging.
5. Attention seemed to wander.	
6. Sat in chair most of time; took no active part in class activities.	

13. Unimpressive-Attractive Teacher Behavior

Unimpressive	Attractive
1. Untidy or sloppily dressed.	1. Clean and neat.
2. Inappropriately dressed.	2. Well-groomed; dress showed good taste.
3. Drab, colorless.	3. Posture and bearing attractive.
4. Posture and bearing unattractive.	4. Free from distracting personal habits.
5. Possessed distracting personal habits.	5. Plainly audible speech; good expression; agreeable voice tone; good inflection.
6. Mumbled; inaudible speech limited expression; disagreeable voice tone; poor inflection.	

14. Evading-Responsive Teacher Behavior

Evading	Responsible
1. Avoided responsibility; disinclined to make decisions.	1. Assumed responsibility; makes decisions as required.
2. "Passed the buck" to class, to other teachers, etc.	2. Conscientious.
3. Left learning to pupil, failing to give adequate help.	3. Punctual.
4. Let a difficult situation get out of control.	4. Painstaking; careful.
5. Assignments and directions indefinite.	5. Suggested aides to learning.
6. No insistance on either individual or group standards.	6. Controlled a difficult situation.
7. Inattentive with pupils.	7. Gave definite directions.
8. Cursory.	8. Called attention to standards of quality.
	9. Attention to class.
	10. Thorough.

15. Erratic-Steady Teacher Behavior

Erratic	Steady
1. Impulsive; uncontrolled; temperamental; unsteady.	1. Calm; controlled.
2. Course of action easily swayed by circumstances of the moment.	2. Maintained progress toward objective.
3. Inconsistent.	3. Stable, consistent, predictable.

16. Excitable-Poised Teacher Behavior

Excitable

1. Easily disturbed and upset; flustered by classroom situation.
2. Hurried in class activities; spoke rapidly using many words and gestures.
3. Was "jumpy"; nervous.

Poised

1. Seemed at ease at all times.
2. Unruffled by situation that developed in classroom; dignified without being stiff or formal.
3. Unhurried in class activities; spoke quietly and slowly.
4. Successfully diverted attention from a stress situation in classroom.

17. Uncertain-Confident Teacher Behavior

Uncertain

1. Seemed unsure of self; faltering, hesitant.
2. Appeared timid and shy.
3. Appeared artificial.
4. Disturbed and embarrassed by mistakes and/or criticism.

Confident

1. Seemed sure of self; self-confident in relations with pupils.
2. Undisturbed and unembarrassed by mistakes and/or criticism.

18. Disorganized-Systematic Teacher Behavior

Disorganized

1. No plan for class work.
2. Unprepared.
3. Objectives not apparent; undecided as to next step.
4. Wasted time.
5. Explanations not to the point.
6. Easily distracted from matter at hand.

Systematic

1. Evidence of a planned though flexible procedure.
2. Well prepared.
3. Careful in planning with pupils.
4. Systematic about procedure of class.
5. Had anticipated needs.
6. Provided reasonable explanations.
7. Held discussion together; objectives apparent.

19. Inflexible-Adaptable Teacher Behavior

Inflexible	Adaptable
1. Rigid in conforming to routine.	1. Flexible in adapting explanations.
2. Made no attempt to adapt materials to individual pupils.	2. Individualized materials for pupils as required; adapted activities to pupils.
3. Appeared incapable of modifying explanation or activities to meet particular classroom situations.	3. Took advantage of pupils' questions to further clarify ideas.
4. Impatient with interruptions and digressions.	4. Met an unusual classroom situation competently.

20. Pessimistic-Optimistic Teacher Behavior

Pessimistic	Optimistic
1. Depressed; unhappy.	1. Cheerful; good-natured.
2. Skeptical.	2. Genial.
3. Called attention to potential "bad."	3. Joked with pupils on occasion.
4. Expressed hopelessness of "education today," the school system, or fellow educators.	4. Emphasized potential "good."
5. Noted mistakes; ignored good points.	5. Looked on bright side; spoke optimistically of the future.
6. Frowned a great deal; had unpleasant facial expression.	6. Called attention to good points; emphasized the positive.

21. Immature-Integrated Teacher Behavior

Immature	Integrated
1. Appeared naive in approach to classroom situations.	1. Maintained class as center of activity; kept self out spotlight; referred to class' activities, not own.
2. Self-pitying; complaining; demanding.	2. Emotionally well controlled.
3. Boastful; conceited.	

22. Narrow-Broad Teacher Behavior

Narrow	Broad
1. Presentation strongly suggested limited background in subject or material; lack of scholarship.	1. Presentation suggested good background in subject; good scholarship suggested.
2. Did not depart from text.	2. Drew examples and explanations from various sources and related fields.
3. Failed to enrich discussions with illustrations from related areas.	3. Showed evidence of broad cultural background in science, art, literature, history, etc.
4. Showed little evidence of breadth of cultural background in such areas as science, arts, literature, and history.	4. Gave satisfying complete, and accurate answers to questions.
5. Answers to pupils' questions incomplete or inaccurate.	5. Was constructively critical in approach to subject matter.
6. Noncritical approach to subject.	

Classroom Observation Report Form. This is used to record observer impressions of the class situation: noise level, lighting, teachers' and students' affective behavior, and notes about individual "special study" students. This information was recorded in detail and used in later case study reports.

Classroom Observation System (Year I) and Behavior Observation System (Year II). These forms were used to record systematic classroom observations. Cognitive levels, time-on-task, and descriptions of tasks or activities are noted. The observer recorded the activities of the teacher, and the six or seven special study students, once each minute for the duration of the class period.

Summary of the 14 Categories in the Observational System
For the Analysis of Classroom Instruction

		Category No.	Description of Verbal Behavior
	I	1	ACCEPTS FEELING: accepts and clarifies the feeling and tone of students in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are also included.
	I	2	PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension not at the expense of another individual, nodding head or saying, "uh-huh" or "go on" are included.
W	I	3	ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building on, developing and accepting ideas of students.
W	I	4	ASKS QUESTIONS: asking a question about content or procedure with the intent that the student should answer.
W	I	5	ANSWERS STUDENT QUESTIONS: direct answers to questions regarding content or procedure asked by students.

W	I	6	LECTURES: giving facts or opinions about content or procedures; expressing his own ideas; asking rehetorical questions.
W	I	7	CORRECTIVE FEEDBACK: telling a student that his answer is wrong when the incorrectness of the answer can be established by other than opinion, i.e., empirical validation, definition or custom.
W	I	8	GIVES DIRECTIONS: directions, commands or orders to which a student is expected to comply.
W	I	9	CRITICIZES OR JUSTIFIES AUTHORITY: statements intended to change student behavior from a non-acceptable to an acceptable pattern; bawling out someone; stating why the teacher is doing what he is doing so as to achieve or maintain control; rejecting or criticizing a student's opinion or judgment.
		10	STUDENT TALK: talk by students in response to requests or narrow teacher questions. The teacher initiates the contact or solicits student's statement.
		11	STUDENT QUESTIONS: questions concerning content or procedure that are directed to the teacher.
		12	DIRECTED PRACTICE OR ACTIVITY: non-verbal behavior requested or suggested by the teacher.
		13	DEMONSTRATION: silence during periods when visual materials are being shown or when non-verbal demonstration is being conducted by the teacher.
		14	SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

TLIS Interviews. Each participating teacher was interviewed biweekly by a TLIS classroom observer. Teachers were asked about the activities of the special study students in an attempt to assess teacher knowledge of specific students' achievement and needs. At the final interview, the teacher was asked about the student's progress through the school year, and about any information the teacher might have learned about the child's home situation. Teachers spoke quite often about their own problems and goals in teaching. The interviewer wrote a summary of each interview, including an assessment of the teacher's apparent competence at diagnosing children's needs, prescribing a course of treatment, and following through on the program proposed.

In this section each instrument is described in detail. The history of each instrument is described, as well as its scoring, psychometric properties, and interpretation.

Student Instrument Description

Student Biographical Form. The Student Biographical Form was developed by the project director. Among other things, it provided data which identified the socioeconomic status of each child in the study.

This self-explanatory questionnaire was used to gather information about the student and his/her family. The original version, administered in the fall of 1974 and spring of 1975, was revised for the fall of 1975 and spring of 1976, expanding the questions concerning the subject-child's siblings. The original version of the form asked for the number of older brothers and sisters and the number of younger brothers and sisters. The revised version asked for the name and age of each older brother, younger brother, older sister and younger sister. A fifth sibling-related section asked for the name of a twin brother or sister if the subject-child had one. The revision of sibling-information questions was effected to provide data on birth order.

These additions increased the length of the form from one to two pages. Parents' occupational and educational sections occupy the second page.

During the 1974-1975 data collection period, the instrument was administered by a resource teacher or by a homeroom teacher at 8:15 a.m. During the 1975-1976 collection period, an R&D Center tester or the reading teacher administered the questionnaire in the children's reading classes. The classes met for 40-minute periods at various times between 8:15 a.m. and 2:45 p.m.

Students were instructed to answer the questions on the form using pen or pencil. The teacher remained in the classroom even if she did not administer the form.

Computing SES. The Student Biographical Form (SBF) was used to determine socioeconomic status (SES). The pupil was asked to indicate on this form the occupation of his father and mother and their educational attainments. For the first year, each occupational and educational category was coded by a system devised by Robert J. Havighurst (Peck, et al, 1981).

Where the data were missing or too vague to be coded, the testers made inquiries at the students' schools in order to obtain information on the SES level of particular children. Assistant principals, teachers, and teacher aides were asked for information about parents' jobs and education, income, or where they lived. Specific information was obtained for some students in this manner. For others, the only SES indicator was whether or not the child participated in the free lunch program. In a few cases, a "missing" score had to be put in the data base.

The SES score for the TLIS was calculated as follows: SES = 3 x Parental Occupation + 2 x Parental Education. Both parental occupation and education vary on scales from 1 to 6, with the resulting SES score varying from 5 to 30. Three broad SES categories were defined as follows:

HIGH SES = 5 - 10
MID SES = 11 - 19
LOW SES = 20 - 30

Rational (rather than statistical) considerations were the basis for these three categories.

The occupation scale was as follows:

SCORE	STATUS LEVEL	SAMPLE OCCUPATIONS
1	upper-middle & upper	doctor, lawyer
2	upper-middle	accountant, office manager
3	lower-middle	clerk, secretary
4	upper-lower	mechanic, typist
5	upper-lower	factory worker, waitress
6	lower-lower	janitor, street worker

The educational scale was as follows:

SCORE	EDUCATIONAL LEVEL
1	university graduate
2	some college
3	high school graduate
4	some high school
5	8th grade graduate
6	less than 8th grade

Student Attendance Form

The Student Attendance Form was developed for the project. This form provides a record of each pupil's name and the total number of days the child was absent during the school year. The form was completed by the teacher at the teacher's convenience, at the end of the 1975 and 1976 school years.

School Sentiment Index

The School Sentiment Index, developed and published by the Instructional Objectives Exchange, UCLA Center for the Study of Evaluation at Los Angeles, California, is used to measure student attitudes toward various aspects of school. In its published form, the SSI consists of 81 statements representing five dimensions: the teacher, learning, social structure and climate, peers in school, and school in general. The instrument generally takes 20 to 30 minutes to complete. Students respond to the statements by indicating whether the item is true or false for them. Typical items include "T F My teacher is not bossy" and "T F The biggest reason I come to school is to learn".

The SSI was used as a pre- and post-test during both the 1974-1975 and 1975-1976 data collection periods. The form was revised before the initial use, and then revised again before the second administration.

The form used in 1974-1975 consisted of 54 items, listed on three sheets, stapled together. The "school social structure and climate" and "peer" subscales were omitted. In addition, some items deemed abrasively negative toward teachers were reworded or omitted. For example, an item that originally read, "My teacher unfairly punishes the whole class" was changed to "When my teacher punishes us, she is fair about it".

The SSI administered in 1975-1976 consisted of 47 statements, listed on two sheets attached to the two-page Student Self-Description. An additional seven items were judged to be inappropriate and were omitted, thus reducing the SSI from 54 to 47 items. Some items were reworded with the aim of clarifying the statements and simplifying wording so that students could read the instrument without help.

For example, the word "difficult" was replaced by "hard" and a statement such as "My teacher treats me fairly" was reworded, "My teacher treats me the same as everybody else".

The SSI was administered by a tester in social studies classes the first year, and in reading classes the second year. The teacher generally left the room while the students completed the instrument. A few teachers preferred to remain and work at their desks or at the rear of the room. The students were told to circle a "T" if the statement seemed true for them, and to circle an "F" if the statement did not seem to describe their feeling or attitude.

Scoring and Psychometric Properties. The School Sentiment Index (SSI) given in Year II was a subset of the questions given in Year I. Fifty-four questions were given in the first year, and 47 questions were given in the second year. The omitted questions were primarily concerned with evaluation of the teacher. Of the 54 items given in Year I, numbers 9, 12, 13, 14, 19, 39, and 47 were omitted. Of the questions given in the second year, numbers 5, 8, 10, 14, 15, 16, 18, 20, 21, 22, 23, 25, 27, 29, 30, 31, 33, 34, 35, 36, 37, 39, and 43 were reversed. On each item, a "1" signified a positive evaluation, and a

"O" a negative one. The final score obtained was a ratio: after the reversals, all the "1"s were added and divided by the number of items which had been attempted. Thus, if the student had only attempted 45 rather than 47 items, his total score was divided by 45, and the ratio counted as his score.

Scores entered on the final data file are: teacher mode of instruction, teacher authority and control, teacher interpersonal relationships (these subscales make up the teacher dimension), and teacher total; student attitude toward learning; student attitude toward school; and SSI total.

The Instructional Objectives Exchange reports reliability data for a single total score. Internal consistency (K-R 20) for the total instrument is reported to be .72 (N=108). Test-retest reliability (time = two weeks) is also reported for the total instrument, r = .87 (N=151).

Interpretation of the SSI. The School Sentiment Index (SSI) instrument measures students' attitude toward various aspects of school. The dimensions of this instrument include attitudes toward learning, the teacher, and school in general. The teacher dimensions include attitudes about the teacher's mode of instruction, interpersonal relations, and authority and control of behavior. The instructions ask the student to " . . . tell how you feel about school and your teacher." (See Tables SSI 1-6.)

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Construct Validity: Correlations			
SSI pre x SSC-A pre	.53	.56	.50
SSI pre x SET pre	.45	.50	.45
SSI post x SET post	.67	.51	-
SSI post x HOWCL	-	.57	-

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ATTITUDE: SCHOOL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within											
	L	.001	.61	+								
	between											
	L	.001	8.18	+								
Academic Coping: Peer rating	within								within			
	L	.001	1.40	+					XP	.04	.43	
	between								between			
	XP	.001	8.93						L	.01	15.35	+
Academic Coping: Self-rating	between				within				within			
	XP	.03	5.05		L	.001	.68	+	L	.001	1.10	+
									between			
									L	.05	8.83	+
General Coping: Self-report	within				within							
	L	.001	1.15	+	XP^Q	.036	.30					
					L	.0001	1.07	+				
					between							
					XP	.01	10.44					
Attitude: General	within				within							
	L	.001	1.16	+	L	.0001	1.97	+				
Self-esteem	within				within				within			
	L	.001	1.64	+	XP	.016	.39		L	.001	.82	+

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE IN ATTITUDE: SCHOOL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task	within XP	.02	.86		within L	.02	1.16	+	between XP	.006	15.65	
Academic Coping	within L	.0001	4.84	+	within L between X^QP^Q	.0003 .03	2.87 8.78	+	between XP X^QP	.007 .01	17.76 12.20	
Social-Emotional Coping	within L XP	.0001 .008	3.97 1.56		within L XP^Q between L	.0002 .03 .006	2.93 .98 13.4	+ +	between XP P^Q	.01 .03	19.24 11.79	
COR-Pupil	between L X^QP^Q	.03 .004	5.22 7.3	+								

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-4
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE TOWARD SCHOOL (SSI)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directio
COR-KU	between T	.01	6.86									
COR-SI	between T^Q	.01	8.08									
COR-KU*pretest					between XT^Q	.04	8.18					
*SSC-C					between PT within PT	.02 .03	9.07 .50					
*SSC-A					between PT^Q within XPT	.02 .00	14.46 1.12					

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)
TABLE III - SSI-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE TOWARD SCHOOL (SSI)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU*BRS-SR					between P^QT^Q	.03	.34					
*Self-esteem	within PT	.00	.99									
*SET					within XPT	.02	.82					
COR-SO*Pretest					within XT	.00	.90					
*SSC-C	between PT^Q	.03	4.45									

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE TOWARD SCHOOL (SSI)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SO*SSC-A					within P^QT^Q	.02	.39					
*BRS-OR					between PT^Q	.04	6.99		between PT	.04	6.61	
*Self-esteem	within PT	.00	.81		between PT^Q	.03	8.08					
*SET					within PT	.02	.54		between PT	.02	9.22	
*HOW					between PT^Q within PT	.01 .04	6.02 .36					

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE TOWARD SCHOOL (SSI)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SO*SES	between PT within PT	.03 .03	4.61 .39		between PT^Q	.05	6.5					
COR-SI*Pretest									between XT^Q	.05	7.13	
*SSC-C									between PT^Q	.02	10.68	
*SSC-A									between PT^Q	.02	12.47	
*Self-esteem	between PT within PT	.04 .00	4.47 .86									

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE TOWARD SCHOOL (SSI)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SI*SET												

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-5
PREDICTING VALIDITY: ATTITUDE: SCHOOL (SSI) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSC-A	within				within				within			
	L	.001	2.75	+	L	.001	3.12	+	XP	.01	.62	
	between				between				P^Q	.001	1.02	
	XP	.04	5.73		L	.04	7.22	+	L	.001	4.29	+
SSC-C	within				within				within			
	L	.001	2.83	+	L	.001	3.42	+	P^Q	.01	.68	
									L	.001	4.35	+
									between			
									L	.01	23.06	+
BRS-OR					within							
					L	.001	.76	+				
					XP	.03	.26					
BRS-SR					within							
					L	.001	1.18	+				
Achievement					within							
					L	.01	.19	+				

VALIDITY DATA FOR
STUDENT ATTITUDES TOWARD SCHOOL (SSI)

TABLE III - SSI-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replication Validity:			
Between Class -			
SSI Regressed Change Predicted by:			
SSC-A (XP)		X	X
Academic Coping (XP)		X	X
Socio-Emotional Coping (P) +		X	X
BRS-OR*COR-SO (PT)		X	X
SES*COR-SO (PT)	X	X	
Within Class -			
SSI pre predicted by SEX F7M	X	X	X
SSI post predicted by SEX F7M	X	X	X
SSI Regressed Change Predicted by:			
SSC-A (P) +	X	X	
SSC-C (P) +	X	X	
BRS-SR (P) +		X	X
Self-Esteem (P) +	X		X
Academic Coping (P) +	X	X	
Socio-Emotional (P) +	X	X	
Socio-Emotional (XP)	X	X	

144

The Piers-Harris Children's Self-Concept Scale (P-H) and Student Self-Description (SSD)

The Piers-Harris Children's Self-Concept Scale, developed by E.Y. Piers and E.D. Harris in 1969, is published by Counselor Reporting and Tests, Box 6184, Acklen Station, Nashville, Tennessee 37212. This self-report instrument provides a measure of children's conception of themselves or their self-esteem. It is designed for children with a minimum third grade reading ability but can be used with children who read below that level if administered individually. In Year II a revised, abbreviated version of the Piers-Harris was used.

Eighty true-false, self-descriptive statements comprise the original instrument which takes between 15 and 20 minutes to complete. In this study, the original measure was administered for the fall 1974 and spring 1975 data collection periods. A revised instrument, called the Student Self-Description (SSD) for project purposes, was used during the fall of 1975 and the spring of 1976. The revision was occasioned by several considerations. First, the time taken for the total battery in 1974-1975 exceeded what many teachers felt was the maximum they could give up from class time. Second, there was a redundancy of items in the original Piers-Harris. It therefore seemed worth testing a shorter version of the instrument. Finally, both the teachers and testers had found that some of the original items had a disruptive effect, particularly among boys: items such as "I have pretty eyes" and "I am popular with boys". The Piers-Harris was originally composed of several subscales, but because only a total score was used for the TLIS project, the reliability of the total score was not appreciably affected by removing these items.

Some items representative of both versions of the instrument are:

I am always dropping and breaking things.

I have many friends.

I am good in my school work.

I am smart.

I cause trouble to my family.

The instrument was administered by a tester in social studies classes (Year I) and reading classes (Year II) which met at various 40 minute periods between 8:15 and 2:45. The teachers generally left the room, although some preferred to remain and work at their desks or at the back of the room.

In Year I, the students were given a test booklet containing statements 1-80, followed by yes-no, and a standard optical scan answer sheet with three sections of T/F boxes to black in, with 80 spaces in each section. In Year II, the students were given two sheets (stapled behind the SSI) with 33 sentences preceded by T and F.

In Year I, students were instructed not to mark on test booklets, but to black in the boxes below the T or F on the answer sheet, corresponding to the appropriate sentence. If the test was being read aloud, the answer sheet only might be given to students. In Year II, the instrument was introduced to the students along with the SSI as sentences about school and about yourself. They were instructed to "circle T if the sentence is true for you; F if it's not true for you".

Scoring and Psychometric Properties. Factor analysis of the items in the new version produced the same structure as in the original form. The SSD version reduced the number of items from 80 to 33. It retained several sentences for each factor measured by the original scale, while reducing redundance. The items which were retained from the original scale were numbers 4, 5, 14, 16, 21, 26, 28, 30, 31, 33, 34, 36, 37, 39, 40, 46, 48, 49, 50, 51, 52, 53, 54, 57, 58, 59, 60, 61, 63, 64, 66, 75, and 80. SSD items correlated .98 with full set (PH).

In Year I, the scores ran from 0 to 80 with higher scores indicating higher levels of self-esteem. In Year II, a higher score also indicated higher self-esteem. A total score was used in both years.

For the original form of the Piers-Harris Children's Self-Concept Scale, published internal consistency reliability coefficients range from .78 to .93 (Kuder-Richardson formula) and from .87 to .90 (Spearman-Brown formula, odd-even split halves). Mayer (1965) reports the coefficient of validity to be .68 with the Lipsett Children's Self-Concept Scale. The published norms are based on a sample of 1,183 public school students with no significant sex differences, drawn from grades 4-12. Test-retest reliability was reported to range from .71 to .77 (4 months).

The internal consistency reliability was .93 for both pre-test and post-test measures, with N=1452, in Austin Years I and II and in the Kentucky sample. The test-retest reliability coefficient for the SSD used in the second year was .89.

Interpretation of Piers-Harris Children's Self-Concept Scale/Student Self-Description. The total scores on these instruments measure the children's global self-esteem. (See Tables SE 1-6.)

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Construct: Correlations			
Self-Esteem pre x BRS-SR pre	.53	.40	.52
x SSC-C pre	.35	.35	.24
Cross Rater: Correlations			
Self-Esteem pre x BRS-OR pre	.25	.23	.28
x Academic Coping	.40	.30	NS
x Socio-Emotional Coping	.32	NS	NS

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN SELF-ESTEEM

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within L	.001	1.65	+	within L	.01	.45	+	within L	.01	.50	+
					between XP^Q	.001	15.93					
Academic Coping: Peer-rating	within L	.001	1.39	+					within L	.001	1.62	+
	between XP^Q	.02	5.06						between XP^Q	.04	13.72	
Academic Coping: Self-rating	within L	.001	1.36	+	within L	.001	.64	+	within L	.001	1.11	+
	between L	.01	5.73	+	between XP	.04	6.17					
General Coping: Self-report	within L	.001	.42	+								
	between L	.04	3.82	+					between L	.03	14.16	-
Attitude: General	within L	.001	.49									
	XP^Q	.01	.32									

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON SELF-ESTEEM

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task	within								between			
	L	.0004	1.90	+					L	.03	15.18	+
									X^QP^Q	.03	11.36	
Academic Coping	within								within			
Teacher rating	L	.01	2.86	+					L	.02	1.54	+
	XP^Q	.03	.63						between			
	between								P^Q	.04	14.25	
	L	.002	7.18	+								
Social-Emotional	within											
Coping	L	.0003	2.01	+								
Teacher rating	between											
	L	.02	5.08	+								
COR-Pupil	between											
	XP^Q	.04	3.79									

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-4
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE ON SELF-ESTEEM

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU*SSC-A	between PT^{L+Q}	.02	6.97									
*SSC-C					between PT^{Q}	.00	12.82					
*BRS-SR					within $P^{Q}T^{Q}$	.01	.42		between PT^{Q}	.04	12.35	
*SET	within XPT	.01	.59		within XPT	.01	.50					
*SES	within XPT	.01	.61		within XPT	.01	.97					

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE ON SELF-ESTEEM

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-[illegible]*pre	within PT	.00	.85		between XT^Q	.05	5.51		between PT^Q	.04	12.35	
*SSI	between PT within PT	.03 .02	4.30 .25									
*SSC-A	between PT	.01	5.61									
*GMG					within PT	.00	1.17					
*SET					within XPT	.02	.79					

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE ON SELF-ESTEEM

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SI*SSI	between PT	.03	4.61									
*SSC-A	between PT	.01	6.35									
*SSC-C	within XPT	.01	.66		within XPT	.02	.72					
*Ach.					between PT^Q	.04	6.62					

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-5
PREDICTIVE VALIDITY: SELF-ESTEEM PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within				within				within			
	L	.001	1.64	+	XP	.016	.39		L	.001	.82	+
SSC-A	within				within				within			
	P^Q	.001	.24		L	.001	1.72	+	L	.001	3.35	+
	XP	.02	.25		XP	.05	.29		between			
	XP^Q	.03	.24		between				P^Q	.004	17.49	
	L	.001	2.21	+	L	.01	11.68	+				
SSC-C	within				within				within			
	P^Q	.001	.65		L	.001	.88	+	L	.001	2.56	+
	XP	.01	.40									
	L	.001	3.05	+								
BRS-OR		NA			within					NA		
					L	.001	.65	+				
BRS-SR		NA			within					NA		
					L	.001	4.51	+				

VALIDITY DATA FOR
SELF-ESTEEM (PH & SSD)

TABLE III - SE-5 (cont'd)

PREDICTIVE VALIDITY: SELF-ESTEEM PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within XP	.01	.23						within L	.0001	1.36	+
	within L	.001	.39	+								

VALIDITY DATA FOR SELF-ESTEEM (PH & SSD)

TABLE III - SE-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class -			
Self-Esteem Regressed Change Predicted by:			
SSC-C (L)	X		X
BRS-OR (XP^{Q})	X		X
Academic Coping (L)	X		X
Pretest*COR-SO (XT)		X	X
Within Class -			
Self-Esteem pre predicted by:			
SES(L) H7L	X	X	X
SES (M)	X	X	
Self-Esteem post predicted by:			
SES	X		X
Self-Esteem Regressed Change predicted by:			
BRS-OR	X		X
BRS-SR	X	X	X
Academic Coping	X		X
Pre*SSC-C*COR-SI	X	X	
Pre*SES*COR-KU	X	X	
Pre*SET*COR-KU	X	X	

Student Description

The Student Description instrument was developed for the project. The instrument requires the teacher to describe a specific student by checking a box on a Likert-type, adjectival scale. The instrument was completed by teachers regarding the "special study" students who were individually observed throughout the project (see Observation section, this chapter).

The Student Description form was administered in Spring 1975 and in Spring 1976. Teachers were given the instrument and were asked to complete it at their convenience.

The Student Description is composed of the school coping items of the Behavior Rating Scale, and the attitude and behavior items of Ryan's Classroom Observation Record - Pupil factor (COR-P). On this instrument, two items concerned the pupils' cognitive skills; seven items concerned the pupils' classroom coping skills; 11 items concerned personality characteristics of the pupil; and two items concerned the pupils' attitudes toward school.

The Student Description instrument was altered only slightly for the second year. The items were not changed; the response format was. In the second year, teachers were asked to describe the "special study" students as they were at the period of post-testing, using the 22 items of this instrument. Teachers were also asked to rate each student on how much he or she changed over the school year. Two scores were derived from the second year: SD-Status and SD-Change.

Between administrations, instructions for the first half of this instrument (SD-Status) were also revised. Instructions for the earlier version of the form read: "Please describe (name of student) by checking the appropriate box on each of the following scales. Use as a 'yardstick' all of the children of this age you have known throughout your teaching career". There followed nine pairs of items separated by seven unlabeled, adjacent boxes. Page 2 was headed: "Put an X in the box on each line that comes closest to telling how this person usually acts". There followed 13 pairs of descriptions separated by five adjacent boxes labeled "Very much -- Some -- (blank) -- Some -- Very Much".

The second version of the Student Description instrument instructed the teacher to "Please describe (name of student) by checking the appropriate box on each of the following scales. Describe the student as he is at this point in the year". The second half of this instrument (SD-Change) was headed: "Below please rate the student on how much he has changed since September on scales at the left". There followed 22 pairs of descriptors listed in a single column, and to the right of each pair three boxes labeled: "Lost ground -- Stayed same -- Improved".

Items typical of both versions of the instrument include: "apathetic/alert", "dislikes school/likes school", "loses his temper/keeps his temper", and "works hard/does not work hard". A few items were reworded between administrations and two were substituted. "Restless, can't sit still/quiet, calm" and "outgoing/keeps to himself" were replaced by "shows low self-esteem/shows high self-esteem" and "goes along with the crowd/thinks for himself". (See Tables SD 1-6.)

VALIDITY DATA FOR TEACHER RATINGS OF STUDENTS' ACADEMIC COPING AND SOCIAL-EMOTIONAL COPING (STUDENT DESCRIPTION)

TABLE III - SD-1

CORRELATIONS OF (TEACHER-RATED) COPING SKILLS WITH STUDENT TIME-ON-TASK (WITHIN CLASS)

		Academic Coping	Social-Emotional Coping
Austin 1	N=258	.26	.31
Austin 2	N=253	.27	.25
Kentucky	N=141	.17	NS

All correlations shown have $p < .01$

VALIDITY DATA FOR TEACHER RATINGS OF STUDENTS' ACADEMIC COPING AND SOCIAL-EMOTIONAL COPING (STUDENT DESCRIPTION)

TABLE III - SD-2

CONSEQUENT VALIDITY: STUDENT PREDICTORS OF ACADEMIC COPING WITHIN CLASS

Pretest:	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	P	.00	14.24	+	P	.00	3.70	+	P	.00	9.59	+
SSC-A	P^{L+Q}	.00	6.31	+	P	.05	1.31	+	P	.05	1.45	+
SSC-C	P	.03	2.56	+	P	.03	2.56	+				
BRS-OR		NA			P	.00	21.05	+		NA		
BRS-SR		NA			P	.03	2.78	+		NA		
Self-Esteem	P	.00	12.56	+	P	.01	5.29	+	P	.00	17.66	+
Achievement	P	.00	33.78	+	P	.00	9.81	+	P	.00	33.80	+
P-TOT	P^{L+Q}	.00	11.97	+	P XP	.00 .01	1.69 1.46					

VALIDITY DATA FOR TEACHER RATINGS OF STUDENTS' ACADEMIC COPING AND SOCIAL-EMOTIONAL COPING (STUDENT DESCRIPTION)

TABLE III - SD-3

CONSEQUENT VALIDITY: STUDENT PREDICTORS OF SOCIAL-EMOTIONAL COPING WITHIN CLASS

Pretest:	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	P	.00	13.24	+	P	.05	1.74	+	P	.00	16.15	+
SSC-A	P^{L+Q}	.00	6.50	+	P	.05	1.60	+	P	.05	1.06	+
SSC-C	P	.00	4.40	+	P	.00	3.24	+	P	.00	3.41	+
BRS-OR		NA			P	.00	21.10	+		NA		
BRS-SR		NA			P	.01	3.00	+		NA		
Self-Esteem	P	.00	9.88	+					P	.00	6.27	+
Achievement	P	.00	17.95	+	P	.00	4.45	+	P	.00	16.87	+
P-TOT	P	.00	14.32	+								

VALIDITY DATA FOR TEACHER RATINGS OF STUDENTS' ACADEMIC COPING AND SOCIAL-EMOTIONAL COPING (STUDENT DESCRIPTION)

TABLE III - SD-4

PREDICTIVE VALIDITY: ACADEMIC COPING (SPECIAL STUDY STUDENTS) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within L	.0001	4.84	+	within L between x2p2	.0003 .03	2.87 8.78	+	between xp x2p	.007 .01	17.76 12.20	
SSC-A	within L	.001	5.94	+	within L between x2p2	.01 .004	1.69 1.98	+	within xp2 between xp	.02 .01	2.54 16.56	—
SSC-C	within L	.0001	6.54	+	between L x2p	.04 .02	6.52 8.21	+	within L	.03	2.64	+
BRS-OR		NA (no post-test)			within L between x2p	.0001 .05	15.39 4.28	+		NA (no post-test)		
BRS-SR		NA (no post-test)			within L between x2p	.0001 .05	15.39 4.28	+		NA (no post-test)		
Self-Esteem	within L xp2 between L	.01 .03 .002	2.86 .63 7.18	+					within L between p2	.02 .04	1.54 14.25	+
Achievement	within L p2 xp between L	.001 .01 .04 .04	1.63 .61 .42 3.04	+ +					within L	.0001	5.79	+

STUDENT DESCRIPTION: VALIDITY DATA FOR
ACADEMIC COPING/SOCIO-EMOTIONAL COPING
(TEACHER RATING)

TABLE III - SD-5
PREDICTIVE VALIDITY: SOCIAL-EMOTIONAL COPING PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SS1	within L XP	.0001 .008	3.97 1.56		within L XP^Q between L	.0002 .03 .006	2.93 .98 13.4	+ +	between XP P^Q	.01 .03	19.24 11.79	
SSC-A	within L	.001	3.90	+	within L between X^QP^Q	.006 .006	2.04 10.86	+	within P^Q	.04	2.09	
SSC-C	within L	.0001	3.25		within L between L	.03 .02	1.34 9.30	+ +				
BRS-OR		NA			within L between L	.0001 .03	16.39 5.17	+ +		NA		
BRS-SR		NA			within L	.0001	8.86	+		NA		

VALIDITY DATA FOR
STUDENT DESCRIPTION: ACADEMIC COPING/SOCIO-EMOTIONAL COPING
(TEACHER RATING)

TABLE III - SD-5 (cont'd)
PREDICTIVE VALIDITY: SOCIAL-EMOTIONAL COPING PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directio
Self-Esteem	within L	.0003	2.01	+								
	between L	.02	5.08	+								
Achievement	within L	.001	1.81	+	within P^Q	.001	.87		within L+	.0001	3.37	+
					between X^QP	.03	1.52					

VALIDITY DATA FOR TEACHER RATINGS OF STUDENTS' ACADEMIC COPING AND SOCIAL-EMOTIONAL COPING (STUDENT DESCRIPTION)

TABLE III - SD-6

		AUSTIN 1	AUSTIN 2	KENTUCKY
Replications				
Between class: not analyzed				
Within class: Academic coping predicted by:				
SSI		X	X	X
SSC-A		X	X	X
SSC-C		X	X	
BRS-OR		NA	X	NA
BRS-SR		NA	X	NA
Self-Esteem		X	X	X
Achievement		X	X	X
Within class: Social-Emotional coping predicted by:				
SSI		X	X	X
SSC-A		X	X	X
SSC-C		X	X	X
BRS-OR		NA	X	NA
BRS-SR		NA	X	NA
Self-Esteem		X		X
Achievement		X	X	X
Academic Coping predicting change in:				
SSI	Between class		X	X
	Within class	X	X	
SSC-A	Between class		X	X
	Within class	X	X	X
SSC-C	Between class	NA	X	NA
	Within class	X		X
BRS-OR	Between class	NA	X	NA
	Within class	NA	X	NA
BRS-SR	Between class	NA	X	NA
	Within class	NA	X	NA
Self-Esteem	Between class	X		X
	Within class	X		X
Achievement	Between class	X		
	Within class	X		X

Student Sentence Completion (SSC)

The Student Sentence Completion (SSC) instrument was developed by R.F. Peck. The original instrument was a free-response sentence completion instrument, with highly reliable coding and scaling systems (see Peck, et al, 1973). The validity findings from the Coping Styles study were used to develop a less expensive, machine scorable, multiple choice instrument for use in the Teaching-Learning Interaction Study (TLIS) in 1974. This was done by selecting the most frequently used responses in the Cross-National scaling manual. Each set of four possible responses on the new multiple-choice form included one "positive", one "negative", and two "neutral" or "distractor" choices.

Two scales, Attitude (SSC-A) and Coping (SSC-C) were scored from the responses to, two independent sets of items in this instrument.

The TLIS version of this instrument was administered in Fall 1974. An analysis of the scoring procedure was worked out on 25% of the Austin sample in an effort to ascertain whether the procedure required revision. Each item response was subjected to one-way analyses of variance with three pre-test criteria: Comprehensive Tests of Basic Skills, Piers-Harris Self-Concept Scale, Behavior Rating Scale: School Coping Skills. Items or response alternatives that showed no power to discriminate on coping or achievement were considered invalid. This resulted in one item being dropped, and an increase or decrease of scoring weights for several response alternatives. These revisions were entered into the pre-test scoring. The Fall 1974 instrument was scored on 28 items, with the new scoring weights for the responses.

Between data collection years, the SSC retained its essential form although revisions were made in the wording of a few items to increase students' comprehension. Certain items were reworded using a simpler vocabulary (i.e., from "ignore them" to "not pay attention to them"; from "a nuisance" to "sometimes bothers me"). One item (number 3 in the Year I form) was omitted from the Year II form because analysis of the Year I samples indicated that this item did not correlate significantly with the total Attitude scale. This item was therefore not included in the Attitude score in either year. Two items (numbers 7 and 25) from the Year II form were omitted from scoring because a judgment was made that these two items, having been reworded, did not have the same meaning as the Year I form items. In order to increase the comparability of Year I and Year II instruments, these items were omitted. Thus, 26 of the 29 items were retained for scoring, in essentially the same form, from Year I to Year II.

A sample item from the SSC is: "I think most policemen are ____".

______ mean

______ sometimes rough

______ enforcing the law

______ friendly

A tester administered the instrument in Social Studies classes (Year I) and in Reading classes (Year II). The teacher generally left the classroom, although some preferred to remain and work at their desks or at the back of the room. Students received six stapled sheets containing incomplete sentences and were instructed to read the sentences and choose the group of words which seemed to best complete the sentence. Choices were indicated by putting an X or a check in the blank beside the group of words.

Students sometimes asked whether they could select more than one answer (answer: "No, that would confuse the computer"), or they asked about the meanings of particular words.

The scoring procedure followed was the same for both Year I and Year II. Using a scoring key, each item, whether designated to be an Attitude or Coping item, had four possible responses. Each response had been assigned a value of either 1, 2, or 3. Scores were obtained by summing response values, and then dividing the sum by the number of items, to obtain a mean response value for each scale. The scale value could thus vary from 1.0 to 3.0.

The Attitude scale (12 items) showed an internal consistency reliability (Cronbach's alpha) of .61 for the pre-test administration in the fall 1974 (N=1483) and .62 in the fall 1975 (N-1044). The post-test administration, in the spring 1976, showed a reliability of .63 (N=1013). The Coping scale (14 items) showed a reliability of .63 for the pre-test administration in the fall 1974 (N=1483) and .66 for the fall 1975 (N=1044) with 17 items. The coefficient obtained for the post-test administration was .69 (N=1013). In the fall 1974, test-retest reliability coefficients (t=three weeks) were .63 and .68 for the Attitude and Coping scales, respectively. These relatively low reliabilities indicate that the free-response version of the instrument is substantially more stable than the multiple-choice version, and therefore is preferable, where hand-scoring is feasible.

Interpretation of the SSC. This instrument is divided into two scales: attitudes (SSC-A, 12 items) and coping skills (SSC-C, 14 items). There are five sets of items, pertaining to five situations: task achievement, interpersonal relations, authority, aggression, and anxiety.

The SSC-C score reflects the student's description of his coping behavior, in school and outside of school. The coping score reflects the degree of self-initiated, self-maintained, problem solving behavior the student reports.

The SSC-A score reflects the sum of the student's expressed attitudes about task achievement, interpersonal relations, and authority.

The score on each of the two scales (attitude and coping skills) was a total-of-the-items score for Year I and a mean-of-the-items score for Year II. (The mean score is a smaller, more manageable number.) A high score on the SSC-A means the student expresses a positive attitude, in general; and a high score on the SSC-C means the student reports using effective coping skills, across the five aspects of life. (See Tables SSCA 1-6 and SSCC 1-6.)

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Construct: Correlations			
SSC-A pre x SSI pre	.53	.56	.50
x Self-Esteem pre	.38	.38	.30
x BRS-OR pre	.15	.12	.13
x BRS-SR pre	.34	.21	.25
x SET pre	.22	.33	-
SSC-A post x SET post	.34	.27	-
x HOWCL	-	.43	

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within L	 .001	 .95	 +					within XP	 .02	 .61	
Academic Coping: Peer rating	within L	 .001	 2.27	 +	within L between L	 .01 .001	 .48 17.55	 + +	within L between L XP^Q	 .001 .01 .02	 1.11 14.12 8.05	 + +
Academic Coping: Self-rating					within L XP between L P^Q	 .001 .07 .03 .02	 1.01 .43 7.96 7.84	 + + 	within L XP P^Q between L	 .001 .05 .01 .006	 2.81 .43 .74 16.29	 + +
General Coping: Self-report	within L	 .001	 1.24	 +	within L	 .001	 1.65	 +	within XP L	 .001 .001	 .99 1.22	 +
Attitude: School	within L between XP	 .001 .04	 2.75 5.73	 + 	within L between L	 .001 .04	 3.12 7.22	 + +	within XP P^Q L	 .01 .001 .001	 .63 1.03 4.29	 +

VALIDITY DATA FOR STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-2 (cont'd)

CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-esteem	within				within				within			
	P^Q	.001	.24		L	.001	1.72	+	L	.001	3.35	+
	XP	.02	.25		XP	.05	.29		between			
	XP^Q	.03	.24		between				P^Q	.004	17.49	
	L	.001	2.21	+	L	.01	11.68	+				

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task	within L	.001	1.88	+	within L	.0006	3.25	+	between XP P^Q	.02 .03	12.56 10.65	
Academic Coping	within L	.001	5.94	+	within L between X^QP^Q	.01 .004	1.68 11.98	+	within XP^Q between XP	.02 .01	2.54 16.56	
Social-Emotional Coping	within L	.001	3.90	+	within L between X^QP^Q	.006 .006	2.04 10.86	+	within P^Q	.04	2.09	
COR-Pupil	between L XP	.01 .02	8.76 6.64	+								

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-4
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU	T	.01	13.48									
COR-SO	T XT	.05 .04	7.00 5.67						T	.05	11.43	
COR-SI	T^Q XT	.03 .03	6.75 6.33									
COR-KU*Pretest	between XT	.04	5.12									
COR-KU*Self-esteem	between PT^{L+Q} within PT^{L+Q}	.01 .03	9.84 .65									

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU*Ach.	between PT	.01	7.97									
COR-KU*SES	between PT within PT^{L+Q}	.02 .01	6.10 .62									
COR-SO*Pretest	between XT^{L+Q}	.03	6.33									
COR-SO*Ach.	between PT	.01	7.93									
COR-SO*SES	between PT within PT	.02 .01	6.93 8.22									

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SI*Pretest	between XT	.02	7.39						between XT	.03	7.95	
COR-SI*Ach.	between PT	.02	7.24									

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-5

PREDICTIVE VALIDITY: ATTITUDE: GENERAL (SSC-A) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within L	.001	1.16	+	within L	.0001	1.97	+				
SSC-C	within L	.001	1.30	+	within L	.001	1.67	+	between XP L	.03 .04	15.23 16.29	+
BRS-OR		NA			within L	.001	.54	+		NA		
BRS-SR		NA			within L	.001	1.36	+		NA		
Self Esteem	within L XP^Q	.001 .01	.49 .32	+								

VALIDITY DATA FOR
STUDENT ATTITUDE: GENERAL (SSC-A)

TABLE III - SSCA-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class -			
SSCA Regressed Change Predicted By:			
BRS-SR		X	X
Self-Esteem		X	X
BRS-OR		X	X
SSI (XP)	X	X	
Academic Coping		X	X
Pre*Cor-SI	X		X
Within Class -			
SSC-A pre predicted by SEX (F7M)	X	X	X
SSC-A post predicted by SEX (F7M)	X		X
SES (M): XLM,CL	X	X	
SSC-A regressed change predicted by:			
SSI (P)	X	X	X
SSC-C (P)	X	X	X
BRS-OR (P)	X	X	X
BRS-SR (P)		X	X
Self-Esteem (P)	X	X	X
Self-Esteem (XP)	X	X	
Academic Coping (P)	X	X	
Socio-Emotional Coping (P)	X	X	X

VALIDITY DATA FOR STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Construct: Correlations			
SSC-C pre x BRS-OR pre	.12	.24	NS
BRS-SR pre	.35	.28	.24
Self-Esteem pre	.36	.35	.24
Achievement pre	.07	.13	NS
SSC-C post x Self-Esteem post	.43	.33	-
Achievement post	.18	.08	-
Cross rater: Correlations			
SSC-pre x BRS-OR pre	.12	.24	NS

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN GENERAL COPING: SELF-REPORT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within											
	XP	.001	.47									
	L	.001	1.19	+								
	between											
	L	.001	13.71	+								
Academic Coping:	within				between				within			
Peer rating	XP	.01	.35		L	.03	6.89	+	L	.02	.63	+
	L	.001	3.44	+					between			
									L	.001	30.19	+
Academic Coping:					within				within			
Self-rating					L	.001	2.21	+	L	.001	3.96	+
									between			
									L	.001	40.60	+
Attitude:	within				within				within			
School	L	.001	2.83	+	L	.001	3.42	+	P^Q	.01	.68	
									L	.001	4.35	+
									between			
									L	.01	23.06	+
Attitude:	within				within				between			
General	L	.001	1.30	+	L	.001	1.67	+	XP	.03	15.23	
									L	.04	16.29	+

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-2 (cont'd)
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN GENERAL COPING: SELF-REPORT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-esteem	within P^Q XP L	.001 .01 .001	.65 .40 3.05	+	within L	.001	.88	+	within L	.001	2.56	+

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE IN GENERAL COPING: SELF-REPORT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task	within								between			
	L	.001	3.30	+					XP^Q	.05	15.78	
	P^Q	.0004	2.65									
Academic Coping	within				between				within			
	L	.0001	6.54		L	.04	6.52	+	L	.03	2.64	+
					X^QP	.02	8.21					
Social-Emotional Coping	within				within							
	L	.0001	3.25		L	.03	1.34	+				
					between							
					L	.02	9.30	+				
COR-Pupil	between											
	L	.02	6.23	+								
	XP^Q	.04	5.78									

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-4
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN GENERAL COPING (SSC-C)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU	between T	.05	6.55		between T^Q	.02	8.04					
COR-SO	between T	.01	7.57									
COR-KU*BRS-SR									within XPT^Q	.04	.98	
*SES					between PT^{L+Q}	.03	9.43					
COR-SO*Pretest									within XT	.03	.57	

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN GENERAL COPING (SSC-C)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SO*SSC-A					within P^QT^Q	.04	.73					
*Self-esteem									within P^QT^Q	.03	.55	
*Ach.	between PT within P^QT^Q	.03 .03	4.01 .64						within PT	.04	.53	
*SES	between PT	.01	7.57		between PT^Q	.02	11.63					
COR-SI*Ach.									within PT PT^Q	.03 .04	.63 .50	

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-4 (cont'd)
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE IN GENERAL COPING (SSC-C)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SI*SET									between PT	.03	17.42	
*HOWCL		NA			between PT	.02	7.56			NA		

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-5
PREDICTIVE VALIDITY: GENERAL COPING: SELF-REPORT (SSC-C) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within L	.001	1.15	+	within XP^Q L between XP	 .036 .0001 .01	 .30 1.07 10.44	+				
SSC-A	within L	.001	1.24	+	within L	.001	1.65	+	within XP L	 .001 .001	 .99 1.22	+
BRS-OR					within L	.001	.79	+				
BRS-SR					within L	.001	2.00	+				
Self-esteem	within L between L	 .001 .04	 .42 3.82	 + +					between L	.03	14.16	-

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-5 (cont'd)

PREDICTIVE VALIDITY: GENERAL COPING: SELF-REPORT (SSC-C) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	between											
	P^Q	.02	3.55									
	within											
	XP	.005	.28									

VALIDITY DATA FOR
STUDENT COPING: GENERAL (SSC-C)

TABLE III - SSCC-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class -			
SSC-A Regressed Change Predicted by:			
BRS-OR (P)		X	X
BRS-OR (XP)		X	X
SES*COR-SO	X	X	
Within Class -			
SSC-C pre predicted by SEX (F7M)	X	X	
SSC-C post predicted by:			
SEX (F7M)	X		X
Eth:cl,x (A7C7B)	X	X	
AusBicl,x	X	X	
SSC-C Regressed Change Predicted by:			
SSI (P)	X	X	X
SSC-A (P)	X	X	
BRS-OR (P)	X		X
BRS-SR (P)		X	X
Self-Esteem (P)	X	X	X
Academic Coping (P)	X		X
Socio-Emotional Coping (P)	X	X	

Behavior Rating Scale (BRS)

The Behavior Rating Scale (BRS) was designed to measure a student's coping skills in school. The BRS may be used as a self-rating scale, a peer-rating scale, or a teacher-rating scale, to describe a student's classroom coping behavior. Peer ratings were obtained by asking each student to rate nine of his or her peers. He also rated himself. The teacher ratings were done using the Student Description instrument described below.

To insure that each student would rate and be rated by nine others, a sampling procedure, the Peer Jury Rating System (Haak, 1974) was employed. Teachers were asked to rate any student on which a teacher rating was desired. Mean item scores for each student were computed from the peer ratings.

The original Behavior Rating System (BRS) was developed in 1965 for the project, Coping Styles and Achievement: A Cross-National Study of School Children. That initial instrument was prepared by R.F. Peck. A revised, 13-item form was adapted for use in the Teaching-Learning Interaction Study in 1974. The rating format was changed to feature five points (very much -- some -- blank -- some -- very much) between anchor-descriptors (such as "not dependable -- dependable", "restless, can't keep still -- quiet, calm"). This format proved too complicated for some students, so for the second year the rating format was returned to a single descriptor with a five-point rating scale (never -- blank -- sometimes -- blank -- always). For similar reasons, two items ("restless" and "outgoing") were dropped and one was added ("going along with the crowd"), making a total of 12 items for Fall 1975. For the post-test in Spring 1976, a thirteenth item ("How well do you know this person?" "not at all -- very well") was added. Each BRS form was subjected to item and factor analysis.

The items include: figures out own problem (vs. looks for help); thinks up good ideas (vs. gets few ideas of own); keeps temper (vs. loses temper); gets own way (vs. does not push to get own way); gets along with teachers (vs. does not get along with teachers); dependable (vs. not dependable); quiet, calm (vs. restless, cannot keep still); kind (vs. unkind); gets along with students (vs. does not get along with students); works hard (vs. does not work hard); and keeps cool, does not get upset easily (vs. gets upset easily or gets feelings hurt).

Factor analysis of the peer ratings yielded one general factor. The students either were influenced by a halo effect, or they actually saw academic, social, and emotional coping operating in concert. Teachers, on the other hand, generated two factors from the 22 items of the Student Description: Academic Coping and Social-Emotional Coping. These factors were positively correlated (.76 Austin Year I, .78 Austin Year II, .72 Kentucky).

Scoring Procedures. The scoring produces two scores for each pupil: self-rating (BRS-SR) and peer- or other- rating (BRS-OR).

Self-rating. Each student will have one score for each item on the self-rating form.

Other-rating. Each student will have about nine scores for each item. All the scores for each item are averaged. A student will then have nine item scores. Each item score will be the average score given by the other students.

The total BRS-OR score was derived by adding the item scores algebraically, weighted positively (+1) or negatively (-1), to reverse certain items. The scores on the BRS go from negative to positive numbers. A high score means a high rating of the child's classroom coping behavior. The final peer rating is derived by averaging across the nine ratings and across all items. The total scores used in the study represent self-rated coping and peer-rated coping skill.

Reliability. The internal consistency reliability (coefficient alpha) for the BRS-OR was .95 (N=1379). The test-retest correlation was .64 (N=87). The correlation of the BRS-OR scores, at the beginning and the end of the sixth grade, was .63 (.46 for BRS-SR) (N=957), in Austin II. The BRS-OR correlated .56 with the BRS-SR.

Validity. Construct Validity and Freedom from Bias were tested through factor analysis and correlation procedures. Factor analysis of the BRS resulted in a single general factor. Furthermore, ratings for Anglos, Blacks, and Chicanos were subjected to factor analyses independently for each group of raters, in order to examine whether or not all raters viewed the different subsamples along a common dimension. No significant differences were found among any of the factor structures, using Veldman's Relate program. A single, general factor was predominant, regardless of rater or ratee. The existence of a common dimension increases the validity of comparisons among raters and subsamples (Blattstein, Peck, and Blattstein, 1978). Peck, Clements, and Weber (1977), furthermore, found the BRS to be free from ethnic bias, defined as an interaction between ethnicity of peer raters and ethnicity of ratees. (See Tables BRSO 1-6.)

Self-Rated Competence (BRS-S)

Each student rated him or herself, along with nine other students, using the same items. As is evident from the validity tables, the self-ratings bore only weak relationships to any other measures of coping skill, except in Austin Year II. There was, however, an overall pattern of significant effects of the self-rating on regressed change on numerous outcomes. (See Tables III BRSS 1-5.)

VALIDITY DATA FOR ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Cross-Rater Validity: Correlations			
BRS-OR pre x BRS-SR pre	.42	.24	.32
Behavioral Validity			
BRS-OR pre x achievement pre	.41	.36	.42

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: PEER RATING

	AUSTIN 1				AUSTIN 2*				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement					within							
					L	.001	2.66	+				
					XP	.04	.22					
					between							
					L	.05	4.25	+				
Academic Coping: Self-rating					within							
					L	.03	.26	+				
					P^Q	.03	.26					
General Coping: Self-report					within							
					L	.001	.79	+				
Attitude: School					within							
					L	.001	.76	+				
					XP	.03	.26					
Attitude: General					within							
					L	.001	.54	+				

*Post-test BRS data were collected only on Year Two.

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-2 (cont'd)
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: PEER RATING

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-esteem					within L	.001	.65	+				

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE IN ACADEMIC COPING: PEER RATED

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task					within L XP between L	 .004 .005 .05	 1.69 1.46 4.55	 + +				
Academic Coping					within L between $X^{Q}P$	 .0001 .05	 15.39 4.28	 + 				
Social-Emotional Coping					within L between L	 .0001 .03	 16.39 5.17	 + +				

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-4
CONSEQUENT VALIDITY: TEACHER PROCESS PREDICTING REGRESSED CHANGE ON CLASSROOM COPING - OTHER RATED (BRS-OR)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-SO*Ach.					between PT^Q	.03	5.16					
*SES					between PT^Q	.04	4.48					
					within PT^Q	.03	.29					

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-5
PREDICTIVE VALIDITY: ACADEMIC COPING (PEER-RATED) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directio
SSI	within								within			
	L	.001	1.40	+					XP	.04	.43	
	between								between			
	XP	.001	8.93						L	.01	15.35	+
SSC-A	within				within				within			
	L	.001	2.27	+	L	.01	.48	+	L	.001	1.11	+
					between				between			
					L	.001	17.55	+	L	.01	14.12	+
									XP^Q	.02	8.05	
SSC-C	within				between				within			
	XP	.01	.35		L	.03	6.89	+	L	.02	.63	+
	L	.001	3.44	+					between			
									L	.001	30.19	+
BRS-SR					within							
					L	.001	1.60	+				
Self-Esteem	within								within			
	L	.001	1.39	+					L	.001	1.62	+
	between								between			
	XP^Q	.02	5.06						XP^Q	.04	13.72	

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-5 (cont'd)

PREDICTIVE VALIDITY: ACADEMIC COPING (PEER-RATED) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Achievement	within L	.001	1.30	+	within L	.001	.42	+	within L	.0001	6.17	+
	XP	.001	.96									
	P^Q	.001	.35									
	between XP^Q	.05	2.73									

VALIDITY DATA FOR
ACADEMIC COPING: PEER RATED (BRS-OR)

TABLE III - BRSO-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class - None			
Within Class -			
BRS-OR pre predicted by:			
SEX (F7M)	X	X	X
Eth	X	X	
SES (L) HTL	X	X	X
SES (M) Pres 7 Missing	X	X	

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Construct: Correlations			
BRS-SR pre x SSC-C pre	.35	.28	.24
Self-Esteem pre	.53	.40	.53
Achievement pre	.30	.15	.21
Cross Rater: Correlations			
BRS-SR pre x BRS-OR pre	.42	.24	.32
Teacher-rated Academic Coping	.24	NS	NS
Teacher-rated Socio-Emotional Coping	NS	NS	NS

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-2
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: SELF RATING

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directior
Achievement					within							
					L	.001	1.49	+				
					P^Q	.02	.46					
					between							
					L	.04	1.12	+				
Academic Coping: Peer rating					within							
					L	.001	1.60	+				
General Coping: Self-report					within							
					L	.001	2.00	+				
Attitude: School					within							
					L	.001	1.18	+				
Attitude: General					within							
					L	.001	1.36	+				

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-2 (cont'd)
CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: SELF RATING

	AUSTIN 1				AUSTIN 2*				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-esteem					within L	.001	4.51	+				

*Post-test BRS data were collected only in Year Two.

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-3
CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ACADEMIC COPING: SELF-RATED

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directio
Time on Task					within L	.05	1.28	+				
Academic Coping					within L	.0001	6.43	+				
					between L	.02	10.90	+				
					XP	.01	11.56					
Social-Emotional Coping					within L	.0001	8.86	+				

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-4
PREDICTIVE VALIDITY: ACADEMIC COPING SELF-RATED (BRS-SR) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	between				within				within			
	XP	.03	5.05		L	.001	.68	+	L	.001	1.10	+
									between			
									L	.05	8.83	+
SSC-A					within				within			
					L	.001	1.01	+	L	.001	2.81	+
					XP	.07	.43		XP	.05	.43	
					between				P^Q	.01	.74	
					L	.03	7.96	+	between			
					P^Q	.02	7.84		L	.006	16.29	+
SSC-C					within				within			
					L	.001	2.21	+	L	.001	3.95	+
									between			
									L	.001	40.60	+
BRS-OR					within							
					L	.03	.26	+				
					P^Q	.03	.26					
Self-Esteem	within				within				within			
	L	.001	1.36	+	L	.001	.64	+	L	.001	1.11	+
	between				between							
	L	.01	5.73	+	XP	.04	6.17					

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-4 (cont'd)
PREDICTIVE VALIDITY: ACADEMIC COPING SELF-RATED (BRS-SR) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Directior
Achievement									within L	.0004	1.10	+

VALIDITY DATA FOR
ACADEMIC COPING: SELF-RATED (BRS-SR)

TABLE III - BRSS-5

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class - None			
Within Class -			
BRS-SR pre predicted by:			
SEX (F7M)	X		X
SES (L) H7L	X	X	X

245

How This Class Makes Me Feel

The question of the direct influence of one particular teacher is not satisfactorily addressed by testing the effect of "the" teacher on such measures as general self-esteem, general attitude toward school, or even achievement. Changes on such measures are undoubtedly the product of the student's total experience with all his teachers, and other people, during the year. Therefore, for the second year of the study, the issue was narrowed by constructing an instrument that asked each student how the particular class (teacher) which was being observed affected his sense of acceptance and adequacy.

"How This Class Makes Me Feel" consists of 10 anchored, Likert-scaled items. It was used with students in the spring of 1976. It was designed to assess the students' perception of the impact on self-esteem and social acceptance of the specific class in which they were tested and observed.

An item typical of this instrument is:

"It has made me feel left out." never sometimes always

A tester administered the instrument in a reading class (Year II) which met at various 40-minute periods between 8:15 a.m. and 2:45 p.m. Teachers generally left the room, although some preferred to remain at their desks or at the back of the room. Students received a single sheet with 10 statements which they were asked to rate on the five-point scale (never to always). The instructions read, "The way I was treated in this class, this year, made me feel this way about myself". "This class", they were told, referred to their reading class in which the instrument was administered. This instrument was used only during the post-testing, Year II.

Reliability. The internal reliability (alpha) for this measure was .86, and test-retest reliability was .78.

Consequent Validity. This measure is of interest because it indicates how the students perceived the direct influence of a particular teacher. The students' positive feelings about the class were negatively correlated with teacher age (-.33), years of experience (NS), and teacher degree (NS) in this one sample where HOW was used. (There also were negative correlations of teacher age with teacher kindly-understanding behavior in Austin I and Kentucky.)

Students' positive feelings about the influence of the class on themselves (HOW) were positively correlated with good class behavior (COR-P, .44), as rated by ovservers. A well-behaved class seemed to produce positive feelings in each of the students. Seeing the teacher as an effective teacher also may have helped the students feel better about themselves.

Finally, the particular kinds of teacher behavior influenced how positively the students felt about their class. HOW correlated positively with teacher behavior. Together, the three kinds of teacher behaviors accounted for 27% of the variance in predicting how the students felt. Students' positive feelings about the impact of the class were predicted in this way: 12.6% of variance (p .02) by kindly-understanding teaching: 16.9% of variance (p .006) by systematic-organized teaching; and 21.3% of variance (p .002) by stimulating-inventive teaching. Stimulating-inventive teacher behavior had the most positive influence on how the students felt about themselves in these Austin II classes.

Many of the student measures also predicted how the students felt about the class. Self-rated coping was about the only measure that did not predict how the students felt about their class. Both the post-test (32.8% V) and change-over-the-year (10.9% V) in peer ratings of student coping strongly predicted how the students felt about their class. As expected, the student measures of attitudes (SSI, SSC-A) both had a strong post-test prediction (52.34% V, 24.3% V) and change-over-the-year predictions (43.2% V, 25.7% V), on how the students felt about their classes. How the students evaluated the teacher was the next best predictor of how the students felt about the class (46.6% V post-test, 34.0% V change). Finally, change over the year in student self-esteem (10.4% V), but not in achievement, predicted how the students felt about the class.

The relative effects of teacher and student characteristics on HOW were analyzed by looking at the variance in HOW that was explained by a given pupil pre-test (including variance that it shared with the teacher COR measures), and also at the (lower) amount of variance uniquely explained by the student characteristic when the contribution of COR was taken out.

Table III - HOWCL-1 summarizes the findings. The HOW measure of class and teacher impact was influenced much more by the teacher's actual behavior than by students' initial attitude toward school, general attitude toward life, or their self-rated coping skills. HOW was about equally affected by teacher behavior and by students' beginning (or ending) achievement and self-esteem levels. Since HOW

directly asks how the student self-esteem has been affected by the class and teacher, emotionally as well as academically, close relationship to entering self-esteem is understandable. Final self-esteem may be an amalgam of pre-existing self-esteem together with the direct impact of experience in the subsequent school year. The fact that student achievement level affected HOW as much as did the teacher, reinforces the other findings in the study that self-esteem is quite closely associated with actual achievement; and both seem to color students' end of year perception of how the class has affected them. Peer-rated coping skill showed about this same pattern, affecting HOW about as much as did the teacher's behavior. Its association with tested achievement may work in much the same fashion to foster a feeling that the class experience has been a good one.

Interpretation of How This Class Makes Me Feel. This instrument measures a student's perception of the impact of the particular classroom in which he/she was observed. In particular, the instrument was designed to assess the impact of a particular classroom on the student's self-report of self-esteem and social acceptance (in contrast to the impact of the general school experience that might be reflected in the P-H/SSD measures). The instructions for this instrument ask the student to answer the items with the following idea in mind: "The way I was treated in this class, this year, has made me feel this way about myself." Most of the items reflect the impact of the teacher's behavior toward that student.

The score on this instrument is an average of the item scores, since factor analysis yielded one central factor. A high score means

TABLE III HOWCL-1

TEACHER AND STUDENT EFFECTS ON STUDENTS' FINAL ASSESSMENT OF TEACHER'S IMPACT ON THEM (HOWCL)

AUSTIN II (BETWEEN-CLASS)

Consequent Validity

Student Pretest	Teacher Effects (All COR)		Student Effect Pretest	Shared Contribution	Total HOWCL Variance Explained by this Combination
	Whole	Unique	Unique		
Achievement	27	10	13	17	40
Self-Esteem	27	17	22	10	59
Attitude - School	27	11	36	16	63
Attitude - General	27	27	1	0	28
Coping - General	27	27	0	0	27
Coping - Academic (Peer)	27	12	7	15	34
Coping - Academic (Self)	27	18	2	9	29

Construct Validity Correlations (General)

HOWCL	x	Attitude-School (SSI post)	.57
		Attitude-General (SSC-A post)	.43
		Self-Esteem (SSO post)	.50
		Evaluation of Teacher (SET post) (individual score)	.49
HOWCL	x	COR-Pupil (between)	.44

that the teacher's conduct of the class has enhanced the student's self-esteem.

Comprehensive Tests of Basic Skills (CTBS)

The Comprehensive Tests of Basic Skills are a series of academic achievement tests developed by CTB/McGraw-Hill at Del Monte Research Park, Monterey, California, and published in 1973. They measure students' skills in the language arts, social studies, math, and science. There are several forms of the tests and several levels of difficulty. Procedures for comparing scores on different forms and levels of the tests are well-established.

In the first year of the TLIS, CTBS form S, level 2, was used for pre-testing students in both Austin, Texas, and Daviess County, Kentucky. In Austin, students were tested in either language arts (language mechanics, language expression) or social studies. In Austin, all students completed CTBS form S, level 3, in their respective subject area for the first year post-test.

In Kentucky, students were tested in language arts, social studies, science, or math. In Kentucky, the first year post-test was most often CTBS form S, level 3. The exceptions were some fourth and fifth grade classes who were post-tested with CTBS form S, level 2, and some sixth and seventh graders who were post-tested with CTBS form S, level 2, and some sixth and seventh graders who were pre-tested in social studies using CTBS form S, level 2, but who were given CTBS form Q, level 3, in language arts for the post-test in Spring 1975. Nine classes did not have both pre-test and post-test in the same content area, due to a staff error. The many disparities in the level and content of tests ultimately made it impossible to use the achievement data in the Kentucky analyses.

In Austin, for the second year data collection, two classes received CTBS form S, level 2, in math for both pre-test and post-test (all other Austin classes used the Gates-MacGinitie Reading Test in Year II).

Level 3 was given as the post-test in Spring 1975 because more than 25% of the students scored at or near the ceiling of the Level 2 form, in the fall 1974. In order to achieve comparability, scores from Level 2 and Level 3 were converted to extended standard scores, following the publisher's procedure. Unfortunately, it appears that this "equivalence" scale may not accurately equate the two forms of the test, for the total Austin sample actually scored lower on this scale in the spring than they did in the fall. While this test, like all the other widely-used standardized tests (which had been examined in detail), bears only the slightest, most generalized relation to the specific curricular content actually studied in these classrooms, it seems most unlikely that the students were really more ignorant in the spring than they had been in the fall. Examination indicates that the Level 3 test is a good deal more difficult than Level 2. Our guess is that the publisher's conversion tables somehow do not fully neutralize the effect of this difference, so that an apparent "loss" can appear when the two forms are used pre and post, as was done here. It was still possible to compare individuals or classes on their relative gain or loss, using these data.

The instrument was administered by a tester in the social studies classes (Year I) and the reading classes (Year II). All CTBS administrations were in accordance with the tester's manual that accompanies the tests; instructions were read verbatim from the manual by the tester who administered the tests. Students received the CTBS test booklet and an optical scan answer sheet. Teachers generally left the classroom while the students were taking the tests although some remained in the room to work.

Interpretation of the Comprehensive Test of Basic Skills. This instrument measures student achievement in language arts (language mechanics and expression) or social science. Different groups of students were given different tests, either language or social science. A high total score indicates high achievement in the subject matter of the test administered.

Sample Items -- CTBS, Level 2 - Language Arts. CTBS, Level 2, consists of multiple-choice questions with 20-40 items per subject area.

1. Reading Vocabulary - tests how well a student knows the meaning of words. The student is asked to choose a synonym for a given word from four alternatives.
2. Reading Comprehension - is an exercise that tests how well a student understands what he reads. The student must read a short passage and then choose the best answers to questions about the passage. The questions are presented in multiple-choice format.
3. The Spelling section - measures the student's ability to recognize misspelled words. Statements appear with one word underlined. The student is asked to mark the word right or wrong.
4. Language Mechanics - tests the student's understanding of the rules of punctuation and capitalization. A sentence is given and a judgment about the correctness of the punctuation is called for.

5. The Language Expression section - measures the student's ability to discriminate between forms of words and phrases and to choose those that express a thought most clearly and are grammatically correct.

CTBS, Level 2 - Mathematics. The Math section is divided into mathematics computation and mathematics concepts and applications sections with 48-50 items in each of the two sections. An example from each section follows:

1. Mathematics Computation

$$\begin{array}{r} 179 \\ +\ 430 \\ \underline{245} \end{array}$$

A. 744
B. 754
C. 844
D. 854

2. Mathematics Concepts and Applications

What is the missing fraction?

1/5, 3/15, ____, 7/35

E. 2/10
F. 4/25
G. 5/25
H. 6/30

CTBS, Level 3. CTBS, Level 3, consists of multiple-choice questions with 20-40 items per subject area. The item format consists of questions, sentences, incomplete sentences, and word recognition.

THE FOLLOWING ARE FOR GRADE 5: LANGUAGE ARTS

1. Vocabulary: Accomplish the task.

   a. announce   b. complete   c. study   d. work

2. Comprehension: paragraph -- What is the best title for this story?

   a. ________   b. ________   c. ________   d. ________

3. Spelling: R = right   W = wrong   Winter is my favorite season.

4. Mechanics: Add - . , ? " That parrot is trained to do tricks

   (needs a period)

5. Expression: Fill in word or words: Yesterday Tom ______ to our

   class a picture of two old men.

   a. brings   b. bring   c. brought   d. has brought

Social Studies - Level 3.

1. Read the passage then complete a number of items with reference to the text.

2. Sentence completion from multiple choice list of completers:

   THE COST OF A PRODUCT WILL GO UP IF THE:

   1) demand falls lower than the supply
   2) demand rises higher than the supply
   3) demand and supply are equal and fall together
   4) demand and supply are equal and rise together

All CTBS tests are standardized on a large national sample (N=212,000) of students from grades two to ten randomly selected from all states and regions of the U.S., including both private and public schools. (Refer to Buros, Seventh Mental Measurement Yearbook, 1972.)

Internal consistency reliability coefficients and interlevel correlation coefficients are reported for CTBS (CTBS, Technical Bulletin No. 1, 1974, pp. 41-42). Form S, Level 2, Language Arts test has reliability (KR20) of .82 (language mechanics) and .99 (language expression) for students in late fifth grade or early sixth. Form S, Level 3 (the post-test), has reliability of .76 (mechanics) and .87 (expression) for late sixth grade administration. Interlevel correlations for those scales on the language arts test are: r = .68 (mechanics) and r = .77 (expression) for sixth graders. Form S, Level 2, Social Studies test has internal consistency of .87 for late fifth, early sixth graders. Form S, Level 3, Social Studies (the post-test), has internal consistency of .89 for late sixth grade administration. Interlevel correlation of those tests is published as r = .73.

For fourth graders, the Language Arts test, Form S, Level 2, has internal consistency reliability of about .93; for fifth graders, internal consistency reliability is about .93; for seventh graders, it is .93 at the pre-test administration. For each grade sample that was post-tested with the same level test, internal consistency reliability rises slightly, by .01.

Internal consistency reliability of the mathematics tests, CTBS, Form S, Level 2, for fourth graders is about .94; for fifth graders, about .95; for sixth graders, about .96. Again, for each grade sample post-tested with the same level test, the internal consistency reliability rises slightly.

For the social studies test, Form S, Level 2, internal consistency reliability ranges from about .84 for fourth graders, .87 for fifth graders, to .89 for sixth graders. Level 3 reliability is .89 for sixth graders and .91 for seventh graders, at the end of the school year. Interlevel correlation of Level 2 with Level 3, social studies test, is computed as r = .73 for sixth graders.

For grade five, internal consistency (split-half, K-R 20) has reported reliability of .99 for the whole Level 3 test, .96 for reading tests, .95 for language, .95 for arithmetic, and .92 for study skills. For grade five, CTBS, Level 3 with the California Achievement Tests has total battery validity of .90, with subtest correlations of .85 for reading, .83 for language, and .84 for arithmetic.

Correlations of CTBS, Level 2 with the California Achievement Tests range from .70 to .85 and as high as .93.

Validity correlations coefficients between the CTBS and the California Short-form Test of Mental Maturity generally fall between .60 and .80. (Refer to Buros, Seventh Mental Measurements Yearbook, 1972.)

Gates-MacGinitie Reading Tests (Survey D, Form 1)

The Gates-MacGinitie Reading Test, Survey D, Form 1, was developed by A.I. Gates and W.H. MacGinitie and was published by Teacher College Press, Columbia University, New York, 1972. This standardized reading achievement test for grades 4-6 was administered in Fall 1975 and Spring 1976 in the TLIS. The format is multiple-choice, and the time required is 50 minutes to one hour.

The instrument is divided into the following three scales:

Speed and Accuracy Test. This scale consists of 36 short paragraphs of uniform difficulty. Each paragraph ends in a question or incomplete statement and a choice of four words.

EXAMPLE: "A frog's skin is smooth and bare. He must keep it moist or he will die. He lives near ponds and streams." What does he need?

Bread Water Clothes Waves

Vocabulary Test. This scale contains 50 items, each consisting of a test word followed by five other words, one of which is similar in meaning to the test word. The student's task is to choose the word that means most nearly the same as the test word. The words gradually become less common and more difficult.

EXAMPLE: BIG -- little large easy new fix
ULTIMATE -- awkward final demand quiet clever

Comprehension Test. This scale contains 21 passages in which a total of 52 blank spaces have been introduced. For each blank space, a choice of five completions is offered. The student must decide which one of the five best conforms to the meaning of the whole passage. Items gradually increase in difficulty.

EXAMPLE: "Mother and Dad had been shopping. When they returned, they brought new skates for the twins. The children were very ---1---. They put them right on and went ---2---."

1. Unhappy Empty Short Heavy Heavy
2. Swimming Skating Sledding Walking Reading

This instrument was group-administered to all students in the second-year as pre- and post- tests. The test was administered in reading classes which met at various 40-minute periods between 8:15 and 2:45. The teachers generally left the room, although some preferred to remain and work at their desks or at the back of the room. These tests were administered as directed in the Teacher's Manual which accompanied the Gates-MacGinitie Reading Tests. Instructions were read verbatim from the manual.

The GMG has four scores: speed, accuracy, vocabulary, and comprehension. The speed and accuracy scores were based on the same test. The speed score was the number attempted, and the accuracy score was the number correct. Vocabulary and comprehension scores were based on separate tests.

It was decided that since the accuracy score was necessarily dependent on the number attempted, a ratio of the speed and accuracy scores would convey more information than simply a gross accuracy count. It was also decided that vocabulary and comprehension were not sufficiently differentiated to maintain as separate scores, and that the two scores will therefore be treated as a composite. In sum, there are three scores from the GMG which are being loaded onto the merge file: gross speed, an accuracy/speed ratio, and a vocabulary plus comprehension sum.

In the first year, the Comprehensive Test of Basic Skills (CTBS) was used as an achievement measure. It was replaced by the GMG for several reasons. The chief one was the need to use a reading test, since the teachers preferred that we study reading classes in Year II. Furthermore, the different forms did not appear to be sufficiently standardized; i.e., there was a net loss over a year using supposedly equivalent forms. Finally, the GMG was judged by AISD curriculum experts to be more attuned to the Austin reading curriculum and less an aptitude test than the CTBS.

Internal consistency reliability of the vocabulary and comprehension scales are reported as .87 and .96 (split half, odd/even).

The Gates-MacGinitie's Technical Manual cites Davis (1968) who reports validity coefficients of .78 (vocabulary) and .80 (comprehension) for comparison of the Gates-MacGinitie Reading Test with four other standardized reading tests.

Norms were established by a nationwide standardization in 1964-65 using 40,000 students in 37 communities (Davis, 1968).

Interpretation of the Gates-MacGinitie Reading Test. This instrument measures speed and accuracy of reading, vocabulary, and reading comprehension. A high score indicates a high level of reading achievement. (See Tables ACH 1-6)

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-1

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Cross Rater: Correlations			
Ach. pre x BRS-OR pre	.41	.36	.32
x BRS-SR pre	.30	.14	.21
x Academic Coping	.29*	.47	NA
x Socio-Economic Coping	.23*	.26*	NA

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-2

CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACHIEVEMENT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Academic Coping: Peer rating	within L	.001	1.30	+	within L	.001	.42	+	within L	.0001	6.17	+
	XP	.001	.96									
	P^Q	.001	.35									
	between XP^Q	.05	2.73									
Academic Coping: Self-rating									within L	.0004	1.10	+
General Coping: Self-rating	between P^Q	.02	3.55									
General Coping: Self-report SSC	within XP	.005	.28									
Attitude: School					within L	.01	.19	+				

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-2 (cont'd)

CONSEQUENT VALIDITY: STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACHIEVEMENT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Attitude: General	between XP	.001	5.66									
Self-esteem	within XP within L	.01 .001	.23 .39	 +					within L	.0001	1.36	+

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-3

CONSEQUENT VALIDITY: CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ACHIEVEMENT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Time on Task	within XP	.05	.45		between X^QP^Q	.003	2.49		within XP^Q	.0009	2.47	
Academic Coping	within L P^Q XP between L	.001 .01 .04 .04	1.63 .61 .42 3.04	+ +					within L	.0001	5.79	+
Socio-Emotional Coping	within L	.001	1.81	+	within P^Q between X^QP	.001 .03	.87 1.52		within L+	.0001	3.37	+

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-4

CONSEQUENT VALIDITY: TEACHER PROCESS AFFECTING REGRESSED CHANGE ON ACHIEVEMENT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU	between T^Q	.04	2.97		between T^Q	.01	2.09					
COR-SO					between T^Q	.01	2.33					
COR-KU*Pretest					between XT	.04	1.23					
*BRS-SR					between PT^Q	.04	1.03		within PT^{L+Q}	.05	.54	
*Self Esteem									within PT	.04	.89	

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-4 (cont'd)

CONSEQUENT VALIDITY: TEACHER PROCESS AFFECTING REGRESSED CHANGE ON ACHIEVEMENT

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
COR-KU*HOWCL		NA			between PT	.00	1.83			NA		
COR-SO*SSC-C	between PT^{L+Q}	.02	5.20									
*Self-Esteem									within PT	03	.41	
*HOWCL		NA			between PT	.01	1.75			NA		
*Pretest	within XP	.01	.34									
Pretest BRS-OR	within XPT	.04	.34									

VALIDITY DATA FOR
ACHIEVEMENT

TABLE III - ACH-5
PREDICTIVE VALIDITY: ACHIEVEMENT PRE-TEST PREDICTING PUPIL REGRESSED CHANGE

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within											
	L	.001	.61	+								
	between											
	L	.001	8.18	+								
SSC-A	within								within			
	L	.001	.95	+					XP	.02	.61	
SSC-C	within											
	XP	.001	.47									
	L	.001	1.19	+								
	between											
	L	.001	13.71	+								
BRS-OR		NA			within					NA		
					L	.001	2.66	+				
					XP	.04	.22					
					between							
					L	.05	4.25	+				
BRS-SR		NA			within					NA		
					L	.001	1.49	+				
					P^Q	.02	.46					
					between							
					L	.04	1.12	+				

VALIDITY DATA FOR
ACHIEVEMENT

TABLE III - ACH-5 (cont'd)
PREDICTIVE VALIDITY: ACHIEVEMENT PRE-TEST PREDICTING PUPIL REGRESSED CHANGE

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-Esteem	within L	.001	1.65	+	within L between XP^Q	.01 .001	.45 15.93	+	within L	.01	.50	+

VALIDITY DATA FOR ACHIEVEMENT

TABLE III - ACH-6

	AUSTIN 1	AUSTIN 2	KENTUCKY 1
Replicative Validity			
Between Class -			
Achievement Regressed Change Predicted by:			
COR-KU	X	X	NA
Within Class -			
Achievement pre Predicted by:			
SES (L) H7L	X	X	NA
ETH (A7C7B)	X	X	NA
Achievement post Predicted by:			
SES (L) H7L	X	X	NA
SEX (F7M)	X	X	NA
ETH: AI (A7B7C)	X	X	NA
AII (A7C7B)			
AvsB	X	X	NA
Achievement Regressed Change Predicted by:			
BRS-OR (P)	X	X	NA
Socio-Emotional	X	X	NA

Unit Reading Tests

During the second year of the TLI study, for several reasons, the observed classrooms were changed from social studies classes to reading classes. As a result of this change, finding a criterion measure for reading ability became a major issue. Within each reading class, students were reading at different levels of ability. Consequently, the teacher dealt with them in separate sub-groups, which used materials designed for widely different levels of proficiency. The problem was to find a criterion measure that would reflect change over-the-year of student progress in reading ability,with test-items that were closely linked to the particular reading skills a pupil studied. Furthermore, this criterion measure needed to be one on which all students of all ability levels could be compared. The content of the standard reading ability tests was not at all closely linked to the widely varying curricular experiences of the students in the different sub-groups.

In discussion with the teachers, it developed that the different reading ability textbooks had tests at the end of each unit within the book. These "unit" tests were available from the book publisher; however, the school system had not purchased them, because of funding limitations. The teachers wanted to use these unit tests, and they met the criterion of being sensitive to different reading ability levels. Therefore, the TLI study agreed to purchase these unit tests.

The different reading ability books included Images, Galaxies, On the Earth Riders, Into New Worlds, Exploring Afar, and Discovering Treasures. Most of the unit tests in these books included word recognition and comprehension sections.

The unit reading tests were collected in 11 classes in Year II as an experimental, criterion-referenced measure of the amount and accuracy of work accomplished by the pupils in the reading classes in Austin. An average "percent of work completed" and "percent of work done accurately" were calculated, across a three-month period. This provided a measure of subject-matter mastery, as an alternative to pre-post achievement test gain as a criterion of academic learning.

Scoring and Psychometric Properties. The unit tests were hand-scored by the TLIS staff according to the scoring instructions in the test manual. Tests were returned within one or two weeks to the teachers who showed them to the students, if they wished, before returning them to the project staff. The breakdown of texts used and the number of teachers using each text was: Exploring Afar, 47; Galaxies, 21; Riders on the Earth, 14; Into New Worlds, 9; Discovering Treasure, 3; and Images, 2.

Several factors make it difficult to use the unit tests to measure reading achievement. First, for various practical or judgmental reasons, all teachers did not give the same test. In many cases, even students assigned to the same textbook took different unit tests. Since the tests covered different materials, and were not developed with standardization as an objective, it was difficult to make the scores of various tests equivalent.

Second, the students using each textbook were chosen by the teachers. There was no guarantee that the teachers used similar criteria to assign students to reading groups. In fact, if the criteria used by the teachers were related to the teacher characteristic measurements, an assignment variable could be confounded with a teacher-process variable.

Third, if the most advanced students were placed together, as they usually were, one could expect them to progress at a faster rate than students in other groups. A final problem is that not all teachers did give the mastery tests designed to summarize progress over all material covered in the textbook.

In the end, the great amount of variability in these measures, and the small number of classes, made analyses almost meaningless. Some trial analyses were done. They found no correspondence between achievement test gain and unit test mastery. The unit test measures proved unrelated to any teacher or student characteristics. The conclusion seems inescapable that criterion-referenced tests, by their very nature, probably cannot validly be used to compare the progress of individual students or classes who study materials that are scattered across a wide range of difficulty, with different specific content. Certainly, such measures seem an unsuitable way to try to compare the instructional impact of different teachers on their widely differing students.

Teacher Instrument Descriptions

Teacher Biographical Form

The Teacher Biographical Form was developed by the project director. The instrument consists of 19 questions which ask the teachers to provide information about their education, experience, home, and family. In addition, a self-assessment section of four questions requests the teacher to write short answers regarding what "you consider to be your greatest strength as a person"; "how do these relate to your effectiveness as a teacher?"; "what is the most important thing in your life today?"; "what skills or aspects of your teaching would you especially like to improve?"; and "what are your plans for the future?".

This form was completed by teachers involved in the study in Fall 1974. New teachers joining the project completed the instrument in Fall 1975. The forms were given to the teachers to complete at their convenience.

The information provided by the teacher was used to determine the teacher's socioeconomic status and was a source for other demographic information such as age, sex, education, and years of teaching experience. From these data, the teacher's "family of origin" socioeconomic level can be derived. Although teacher SES was not used as a predictor in this study, because of the homogeneity of these samples of teachers, this index may be fruitfully utilized in assessing the effects of background on teacher characteristics, when more diversified samples are studied.

Class Roster

Class Roster was developed for the project. It was used in the TLI study during the fall and spring semesters of 1974-1975, and the fall and spring of 1975-1976. It is simply a form on which teachers list the name, age, sex, and ethnicity of each student.

Teachers completed the form as soon as their class membership became stable. They were asked to fill out the sheet again in February as a check for sex and ethnic group mistakes, and to determine class membership changes before post-testing. This instrument was given to the teachers to complete and return as they had time.

Student Attendance Form

The Student Attendance Form was developed by The University of Texas at Austin Research and Development Center for Teacher Education. This form provides a record of each pupil's name and the total number of days the child was absent during the school year.

The form was completed by the teachers at their convenience and was used during both project years, in Spring 1975 and Spring 1976.

Class Checklist

The Class Checklist, developed by R.F. Peck, was a set of 10 items on which the teachers compared their class in Year I with their class in Year II: "cooperation in groups", "socially mature", "interesting to me", etc. The items assess both social and academic behavior. The purpose of this checklist was to estimate the degree and nature of similarities and differences between the students in the Year I social studies classes, and the Year II reading classes, in Austin.

The Class Checklist asked teachers in the second year to compare the observed class of the 1975-1976 school year with the observed class of the 1974-1975 school year on the 10 items. The Class Checklist is scored simply for a Similarity Index, the teacher rating of the degree to which the two groups of students were about the same. To each item answered "about the same", a value of 1 was assigned. Each item answered either "more" or "less" (and each item left blank) was assigned a value of 0. The final score was obtained by adding the number of items answered "about the same" and dividing by 10. Thus, if a teacher had answered all 10 items "about the same", her pair of classes would have received a score of 1.0. If she had answered six items "about the same", would have received a score of 0.6. If she had not answered any items "about the same", the pair of classes would receive a score of 0.

Austin Year II teachers reported that the students in their second-year classes were only 26% similar to their first-year students. Most of the teachers reported that their second year classes were substantially less mature physically but more mature socially, showed more interest in school, were more interesting to the teacher, and behaved better in class.

Concerns Questionnaire

Dr. Gene Hall, of the Research and Development Center for Teacher Education at The University of Texas at Austin, developed the Concerns Questionnaire as a self-report inventory to measure teacher attitudes toward innovations. The questionnaire is a series of declarative sentences, which the teacher is asked to rate, using a Likert-type scale of one to seven, according to its relevance to him or her. The 11 teachers who were using the Reading Unit Tests were asked to complete the questionnaire in February 1976.

The following are sample sentences from the original Concerns Questionnaire developed for the Concerns Based Adoption Model project:

> I am concerned about students' attitudes toward this innovation.
>
> I am concerned about how the innovation affects students.
>
> I am concerned about this innovation.
>
> I would like to know how this innovation is better than what we have now.

The instrument was adapted for use in the Teaching-Learning Interaction Study in 1975. A coversheet accompanying the questionnaire explained to teachers that phrases such as "this approach" and "the innovation" referred to their attitude about the use of "unit reading tests". Since the questionnaire is applicable to a variety of innovations, no modification of the text was made.

The instrument purports to measure, on seven independent scales, the teacher's responsiveness to the seven stages of concern posited in the concerns-based adoption model.

Student Time on Task

Each of the special-study students in each class was observed for ten seconds at a time, about once each minute. The student's behavior was classified as on-task, off-task: non-disruptive, or off-task: disruptive. The last kind of activity turned out to be so rare that the latter two categories were collapsed. All analyses of T.O.T. use scores representing the percentage of time-on-task behavior recorded for each student, averaged over the several observation periods.

Reliability. The intra-class correlation for this measure was .87 for four observers making simultaneous behavior codes, on three occasions, involving 78 students in twelve classes.

Validity. (See Tables III TOT1, TOT2.)

TABLE III - TOT-1
CONSEQUENT VALIDITY: SUTDENT PREDICTORS OF TIME-ON-TASK (WITHIN CLASS)

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	P	.00	3.62	+	P	.00	3.03	+	P	.00	6.01	+
SSC-A	P	.00	2.58	+					P	.04	2.30	+
SSC-C	P	.02	1.72	+	P	.03	1.96	+	P	.00	3.10	+
BRS-OR		NA			P	.00	4.80	+		NA		
BRS-SR		NA			P	.05	1.60	+		NA		
Self-Esteem	P	.00	2.88	+						NS		
Achievement	P	.00	6.72	+	P	.04	1.84	+	P	.04	1.56	+

TABLE III - TOT-2
PREDICTIVE VALIDITY: STUDENT TIME ON TASK (TOT) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSI	within XP	.02	.86		within L	.02	1.16	+	between XP	.006	15.65	
SSC-A	within L	.001	1.88	+	within L	.0006	3.25	+	between XP P^Z	.02 .03	12.56 10.65	
SSC-C	within L P^Z	.001 .0004	3.30 2.65	+					between XP^Z	.05	15.78	
BRS-OR		NA no post-test			within L XP between L	.004 .005 .05	1.59 1.46 4.55	+ +	NA no post-test			
BRS-SR		NA no post-test			within L	.05	1.28	+	NA no post-test			

TABLE III - TOT-2

PREDICTIVE VALIDITY: STUDENT TIME ON TASK (TOT) PREDICTING REGRESSED CHANGE ON STUDENT MEASURES

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
Self-Esteem	within L	.0004	1.90	+					between L X^ZP^Z	.03 .03	15.18 11.36	+
Achievement	within XP	.05	.45		between X^ZP^Z	.003	2.49		between XP within XP^Z	.02 .0009	12.6 2.47	

Student Evaluation of Teaching

The Student Evaluation of Teaching (SET) instrument was developed by D.J. Veldman and R.F. Peck at The University of Texas Research and Development Center for Teacher Education at Austin, Texas. A revision of the original instrument (1970) was administered in Fall 1974, Spring 1975, Fall 1975, and Spring 1976. The SET is an evaluation of the teacher by the students. The students indicated their agreement with a set of phrases describing teacher behavior, on a Likert scale.

For the first year data collection period (Fall 1974-Spring 1975), the SET was used in essentially the same form as developed in 1970. The four-point scale was worded as: "Almost Always False", "Often False", "Often True", and "Almost Always True". This format confused some students, so it was changed. For Year II, two items were omitted ("is not confused by unexpected questions" and "gives students a choice of assignments") because they were inappropriate for the school situation. Some words were also changed to reduce reading difficulties. For Year II, the statements were placed first, each followed by three boxes. These boxes were labeled, at the top of the page, "yes", "sometimes", and "no".

Examples: Original (first year 1974-1975)

"This teacher is never dull or boring." F f t T

Revised (1975-1976)

"This teacher is usually cheerful." Yes Sometimes No

This instrument was administered by a tester in the particular classes being studied in both years. The teachers generally left the room, although some preferred to remain and work at their desks or at the back of the room. The students were given a single sheet with statements about the teacher. The students were instructed in Year I to circle one of four letters to indicate how true 10 statements were about their social studies teacher (T, t, f, F). In Year II, the students were to check one of three boxes (yes, sometimes, no) toindicate the applicability of the statement to the reading teacher's behavior.

Other than word meanings, the only question asked was whether the teacher would see the students' answers. This was always answered with a firm "no". This was made clear in the Year II instruction section.

Scoring and Psychometric Properties. Analysis of this instrument (revised for Year II) indicated that the test reflected a single underlying dimension with respect to students' attitudes toward teachers, with the exception of the last item. Thus, total scores for students were obtained simply by adding together the responses to the first seven items, reverse scoring items 3 and 4 in order to have all items exhibit the same directionality. From this, a mean score for each student was derived by dividing total score by number of responses. This enabled a comparable score to be obtained for each student, regardless of whether or not he had answered all seven items.

In order to enhance comparability of instruments between Year I and Year II, mean scores were also derived for each student using only those items in common with Year I (items 1, 2, 3, 5, 6, and 7). (Note: In Year I, items 1, 2, 3, 5, 6, 7, 8, and 10 were totaled to derive the students' scores.) A correlation between the two types of scoring was then obtained. Results indicated a high degree of similarity between the two methods of scoring (pre-test: r = 0.97, post-test: r = 0.98), so the second method, composed of items in common with Year I, was adopted.

During the first year of this study, the Student Evaluation of Teaching (SET) had eight items:

This teacher:

F f t T   is always friendly toward students.
F f t T   knows a lot about the subject.
F f t T   is never dull or boring.
F f t T   asks for students' opinions before making decisions.
F f t T   is usually cheerful and optimistic.
F f t T   is not confused by unexpected questions.
F f t T   makes learning more like fun than work.
F f t T   often gives students a choice in assignments.

The scale was from one (negative) to four (positive). The internal consistency reliability (coefficient alpha) of the Austin first year sample was .80 (post test, N=1297) for the total scale. The second year, this measure was reduced to six items and the scale was changed to range from one (negative) to three (positive). When the scores of the "common" teachers in the two years were compared, their post-test scores in Austin Year I correlated .68 with their scores on the post-test in Austin Year II.

Analysis of the Austin first year data (Fall 1974-Spring 1975) (N=ca. 1370) indicated that students' responses reflected a single dimension of "attitude toward teachers". Reliability of this instrument was assessed from several sets of data. The internal consistency reliability (coefficient Alphs) of the Austin first year sample was .73 (pre-test, N=1333) and .81 (post-test, N=1297) for the total scale. Test-retest reliability across two weeks was .78 (pupil N=61).

Veldman has reported an analysis that gives some support to the validity of the original instrument. In a study of 50 teachers who had two classes, correlations across classes for five scales which were constructed from the SET (two items per scale) ranged from .72 to .92 (Veldman, Student Evaluation of Teaching (RMM-10) UT Research and Development Center, Austin, 1970). Test-retest reliability was 59.3% to 94.0% for grades K-6 and 67.4% to 94.0% for grades 1-6. Reliability increased with increasing grade level.

The norms were established in 1971 with 1,040 students (K-6) and their 36 teachers, in Austin.

Interpretation of SET. The Student Evaluation of Teaching measures the student's evaluative perception of the teacher's behavior. The items include descriptions of teacher characteristics and also the demands the teacher places on students. The instructions ask the student to "tell what you think about your teacher".

The SET instrument could be used to generate either a teacher or a pupil variable. It is used to generate a teacher variable in the TLI Study. When used as a teacher variable, the mean score of all students in a class is treated as a consensual, evaluative description of the teacher by the class as a whole. (Individual student's scores could also be studied as an estimate of each student's idiosyncratic perception of the teacher.)

In year I of the TLIS, the scores on this instrument ranged from 1 - 4, and in Year II the scores ranged from 0 - 2. In both cases, the lower score indicated a negative attitude and the higher score indicated a positive attitude toward the teacher.

The SET measure appears to be a stable and valid reflection of student reactions toward teachers. Furthermore, student judgment on this measure appears to be influenced by teacher behavior that should logically affect such student evaluations. Upon analysis, it was found that students were not biased in evaluating their teachers by their own ethnicity, sex, socio-economic status, or academic achievement level. Overall, the SET measure appears to be a stable teacher measure which is easily obtained. It proved to be substantially related, on the teacher side, to actual teacher behaviors and, on the student side, to attitudinal changes in the students.

Bias. A study of potential sources of bias was conducted, using a sample of 33 teachers who were in both the Austin Year I and Austin Year II sample. The possible sources of bias which were investigated included student demographic status (socio-economic status and ethnicity), ability (achievement), and motivation (attitudes toward school). This special analysis used individual student's evaluation of the teachers, rather than class mean scores. The results were as follows: there were no ethnic or SES effects on SET-pre test scores, or on regressed change in SET. Further, SET-pre was not affected by student achievement level, or by students' peer-rated academic coping skills. The students were not subjectively biased by any of these factors in their own background, or in their academic performance, when they evaluated their teachers.

Validity. SET-post correlated .67 and .57 with SSI-post, in Year I and II respectively. SET-post and How-This-Class-Makes-Me-Feel correlated .68 in Year II. These similar, but not identical, attitude measures showed substantially the amount of relationship to be expected if the SET were a valid estimate of teacher impact on the students.

SET-post (class mean) correlated with the observers' ratings on COR-KU, COR-SO, and COR-SI, .68, .54, and .47 in Year I; .54, .45, and .38 in Year II. The students and the adult observers agreed to a considerable degree in describing the teachers, in both years. Taken with the evidence of lack of bias, this suggests that the students were giving a substantially valid picture of teacher behavior and its effects on them. This is further supported by the finding that the different classes of students in two successive years agreed .68 in rating the same set of 33 teachers. (See Table SET-2.)

Looking at SET correlations with student characteristics, the SET was closely correlated with School Sentiment Index (SSI). Significant correlations occured at the p .01 level on pre- and post-test for all three samples, and across years. Since the SSI is intended to measure student's attitude about school, it is understandable that a student's sentiments about school are highly connected to his/her evaluation of the teacher at school. (See Table SET-1.)

In Austin Year II, the observers' rating of students' classroom behavior (COR-P) also correlated highly with the student evaluations of the teacher. Finally, in Austin Year II, students were asked to rate how that class made them feel and, as expected, their feelings about their class correlated positively (.68, p .01) with their evaluation of the teacher.

In Austin in both years, the teacher's age was negatively correlated with the class' evaluation of the teacher (-.43 and -.47, p .01). This effect did not occur in Kentucky, possibly because the teachers were much more homogeneous in age (30-40 years old) than the Austin samples. In Austin, the older the teachers were, the more negative tended to be the evaluations from the class, though with a few clear exceptions. On the other hand, class' evaluation of teachers correlated positively with all but one (Austin Year II, COR-SO) of the observers' ratings of teacher behavior, in all three samples. Partitioning teacher behavior into these three correlated styles did not much reduce their substantial correlation with the class overall evaluation of the teacher's behavior. (See Table SET-2

In terms of predictive validity, one question is "what pupil outcomes does a class' evaluation of the teacher predict?". As expected, the SET class mean predicted student change over the year on attitudes about school (SSI) in Austin I (P .00, 32.75% V) and Austin Year II (.00, 14.99% V). Change in students' scores on the general coping measure, SSC-C was predicted by SET class means in Austin I (p .00, 12.88% V) and Austin II (p .03, 7.61% V). The class' evaluation of the teacher also predicted student change over the year on general attitude toward life (SSC-A) in Austin I (p .01, 10.50% V) and Kentucky (p .01, 13.48% V), although the relationship was non-significant in Austin Year II. Student change over the year on self-esteem (P-H) was strongly predicted by the class evaluation of the teacher in Kentucky (p .00, 23.85% V). In Austin Year II, that relationship was significant only for the quadratic form of self-esteem (SSC) (p .01, 11.42% V); very high and very low rated teachers tended to produce negative change in self-esteem scores, while average teacher evaluations were associated with positive change in self-esteem scores.

Class evaluations of teachers did not, however, predict change over the year on achievement test scores. (See Table SET-3.)

The converse validity question concerns what measures predict this one. As expected, the strongest predictor of the students' evaluation of the teacher was the students' attitude toward school (SSI). (See Table SET-4). Not only did the students' attitude account for the majority of the post-test variance in their evaluation of teacher (75.4% V Austin I, 30.3% V Austin II), but it also strongly influenced change over the year in students' evaluation of teachers (32.8% V Austin I, 15.0% V Austin II, 19.5% V Kentucky). Given that these measure correlate highly and predict each other strongly, a strong connection obviously exists between the students' attitude toward school and how the students perceive their teacher.

Another measure assessed the students' general attitude toward life (SSC-A). This measure showed an influence on teacher evaluation similar to that of the students' attitude toward school (SSI), but the influence was not as strong. In Austin Year II, general attitude did not predict the (unadjusted) student evaluation post-test, but it did predict change over the year.

The How-This-Class-Makes-Me-Feel measure, as it logically should, showed a strong relationship to the Student Evaluation of Teacher measure. How the students felt about the class strongly influenced their post-test evaluation (47% V Austin II), even with all influence of measured teacher behavior (COR) removed (33.5% V Austin II). How the students felt about the class also strongly influenced change over the year in their evaluation of the teacher (26.5% V Austin II). Both the students' attitude toward school and how they felt about the class influenced their evaluation of the teacher. These data support the desirability of using kindly-understanding behavior to create a positive attitude toward school, while teaching basic curriculum. The children then have a more positive evaluation of the teacher, and they seem to work harder for the teacher and themselves.

Students' coping behavior was measured twice from the students' perspective (SSC-A, BRS-SR) and once from classmates' persepective (BRS-OR). In Austin Year I, general coping ability predicted post-test evaluation of teachers, as did Austin Year II, peer-rated coping. Coping behavior did predict change over the year in student evaluations of teachers (SSC-C: 12.9% V Austin I, 7.6% V Austin II; BRS-OR: 4.4% V Austin II).However, when the influence of teacher behavior was considered, it turned out that teacher behavior, of all three kinds, COR-KU, SO, SI, had more influence on student evaluations of them than did the student's coping behavior.

One might expect the students' self-esteem or achievement level to influence their evaluation of the teacher; however, neither showed a consistent or strong pattern of influence on the post-test or change over the year in student evaluations of teachers. Teacher behavior had more influence on the students' evaluations than either self-esteem or achievement, except in Austin Year II, where achievement predicted change in student evaluations of teacher more than did teacher behavior. Overall, the SET measure of teacher behavior was not biased by students' achievements in school. The students seemed to evaluate teachers on their actual interactions with teachers, not on their subjective feelings about themselves or their accomplishment in school work.

Relations to Teacher Behavior. In all three samples, (See Table SET-5), kindly-understanding behavior had relatively the strongest influence of the three factors, on post-test student evaluations (30.5% V Austin I, 14.4% V Austin II, 53.3 V Kentucky). However, change over the year in student evaluation of teachers was about equally affected by these three aspects of teacher behavior (see Table III - SET-2). Although kindly-understanding behavior showed a slight superiority in Austin I and Kentucky; in Austin Year II, stimulating-inventive teacher behavior strongly predicted change over the year in student evaluations. Among the predictors of change over the year in student evaluation in Austin Year II (between class analysis), teacher stimulating-inventive behavior interacted with student attitudes (SSI, SSC-A, HOWCL) and achievement (GMG-3) to predict the change. In both Austin II and Kentucky, the students' socio-economic status strongly interacted with teacher stimulating-inventive behavior to predict change over the year in students' evaluation of the teacher (6.13% V Austin II, 24.8% Kentucky). Higher SES level students showed greater appreciation for stimulating-inventive teacher behavior, in these two samples.

In the cluster analysis (see Chapter VI), the Student Evaluation of Teaching was one of the measures that distinguished teacher effectiveness levels. This cluster analysis combined all the teacher measures and found the teachers were separated into three clusters, labeled High, Average, and Low Effectiveness. The three observer measures of teacher behavior and students' evaluation of teachers differentiated these groups. This pattern replicated over all three samples. The students' evaluation of teaching measure strongly distinguished all three cluster groups, in all three samples. See Chapter VI for more details.

SET was influenced, as it logically should be, both by teacher personality characteristics and by teacher classroom behavior. Six of nine personality self-report scales showed effects on regressed change on SET, P .05, in year I; three of nine scales in Year II. The classroom behavior measures, as would be expected, showed stronger positive effects on SET-change. The percentages of regressed change in SET explained in Year I were COR-KU 5.1%, COR-SO 3.1%,COR-SI 3.7%. In year II, the figures were COR-KU 1.3%, COR-SO .8%, COR-SI 2.4%. All of these, except COR-SO in Year II, fell below the p = .01 level. Both teacher self-reports and observer ratings tended to confirm the validity of the students' assessments.

The SET-pre individual scores (not the class means) did influence student regressed change on the several cognitive and non-cognitive outcome measures. SET-pre made a significant contribution (p .01, 1.0% variance) to positive change in attitude toward school (SSI), general attitude toward life (SSC-AO, coping skills (SSC-C), and self-esteem (P-H). It did not affect achievement change; but, for reasons discussed elsewhere, standardized achievement tests, by their design, appear to be an unavoidably weak detector of individual teacher influence.

Each of the kinds of positive validity evidence found in the 1974-1975 sample were again found, independently, in the 1975-1976 sample.

Overall, this study of the properties of the SET indicates that the students were not biased by their socio-economic level, ethnicity

(Anglo, Black, or Chicano), achievement levels, or attitudes toward school. These sixth grade students were unprejudiced in their appraisals. The students, as a whole, tended to be quite objective and fair-minded in making realistic judgments of the teacher behavior they observed. The results of this, and of the cluster-analysis referred to in Chapter VI, indicate that the Student Evaluation of Teaching measure can be taken as a good estimate of what teachers are really like.

TABLE III-SET-1

SET CORRELATIONS

	AUSTIN I		AUSTIN II		KENTUCKY	
Student Measures	SET-Pre	SET-Post	SET-Pre	SET-Post	SET-Pre	Set-Post
SSI-Pre	.77	.62	.67	.36	.51	.52
SSI-Post		.87		.55		.71
SSC-A Pre	.38	.37	.39	-.06	.48	.34
SSC-A Post		.49		.16		.56
SSC-C Pre	.39	.22	.19	-.05	.13	-.30
SSC-C Post		.49		.06		.29
BRS-OR Pre	.25	.28	.23	.32	.23	.45
BRS-OR Post	-	-		.33	-	-
BRS-SR Pre	.32	.24	.05	.10	.26	.24
BRS-SR Post	-	-		-.06	-	-
Self-Esteem Pre	.49	.22	.19	.25	.23	.10
Self-Esteem Post		.31		.12		.53
Ach Pre	.13	.15	.22	.42	-	-
Ach Post		.18		.32	-	-
HOWCL	-	-	.36	.68	-	-
SET-Pre	-	.75	-	.56	-	.56
Teacher Behavior						
KU	.48	.55	.43	.38	.53	.73
SO	.27	.33	.19	.28	.59	.68
SI	.40	.36	.30	.35	.33	.66
COR-P						
SES	.05		-.17		NS	
Day Abs.		-.21				
Grade						-.43
Teacher age	-.53	-.43	-.13	-.47	-.45	-.29
Teacher exp.	-.35	-.26	-.07	-.43	-.19	-.04
Teacher degree		-.18		-.39		-.23

TABLE III-SET-2

CONSEQUENT VALIDITY: EFFECTS OF TEACHER BEHAVIOR ON STUDENT EVALUATION OF TEACHING

	Austin I		Austin II		Kentucky	
Teacher Behavior	Post-SET	Regressed Change	Post-SET	Regressed Change	Post-SET	Regressed Change
COR-KU	31%	5%	14%	1%	53%	N/A
COR-SO	11%	3%	8%	1%	46%	N/A
COR-SI	13%	4%	12%	2%	44%	N/A

All entries are percents of variance
All entries are significant at p<.01
N/A = not available

TABLE III-SET-3

PREDICTIVE VALIDITY:

STUDENT EVALUATION OF TEACHERS AS A PREDICTOR OF CHANGE OVER THE YEAR IN STUDENT MEASURES

Student Measures (Regressed Change)	Austin I	Austin II	Kentucky
SSI	32.8	15.0	NS
SSC-A	10.5	NS	13.5
SSC-C	12.9	7.6	NS
BRS-OR	NS	4.4*	NS
BRS-SR	NS	NS	NS
Self-Esteem	NS	11.4^Q	23.9
Achievement	NS	NS	NS

* = $p < .05$
No * = $p < .01$
NS = non-significant
Q = quadratic term

TABLE III-SET-4

CONSEQUENT VALIDITY: PREDICTORS OF SET-POST CLM, BETWEEN CLASS

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
SSC-A, pre	p^{L+Q}	.01	16.1	+								
BRS-OR, pre	p	.04	8.2	+	p	.04	10.0	+				
SSI, pre	p	.00	41.4	+	p	.02	13.1	+				
SET, pre	p	.00	56.13	+	p	.00	31.9	+				
Achievement, pre					p	.05	16.5	+				
SSC-A, post	p	.00	24.12	+								
SSC-C, post	p	.00	24.4	+								
Self-Esteem, post	p	.03	9.44	+								
SSI, Post	p	.00	75.4	+	p	.00	30.3	+				

TABLE III-SET-4 (cont.)

CONSEQUENT VALIDITY: PREDICTORS OF SET-POST CLM, BETWEEN CLASS

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction	Effect	P Value	% V	Direction
BRS-OR, Post	NA	NA	NA	NA	p	.03	10.9	+				
Achievement, post					p	.04	9.6	+				
HOWCL	NA	NA	NA	NA	p	.00	46.6	+				

TABLE III-SET-5

VALIDITY DATA FOR
STUDENT EVALUATION OF TEACHER: A TEACHER MEASURE (CLASS MEANS)

	Austin 1	Austin 2	Kentucky 1
Construct: Correlations			
SET - CLM post x HOWCL	NA	.68	NA
Cross Rate: Correlation			
SET-CLM post x COR-KU	.55	.38	.73
x COR-SO	.33	.28*	.68
x COR-SI	.36	.35	.66
Replicative Validity:			
Between Class -			
SET Regressed Change Predicted by:			
SES*COR-SI(L)		X	X

CHAPTER IV

METHODOLOGY

Regression Analysis

This chapter concerns the general kinds of questions this study asks and the kinds of assumptions which are inherent in its analytic procedures. The data analysis used a particular type of regression model for each question asked in the study. The chapter summarizes the models and techniques used in the data analysis and describes the correspondence between the models which were tested and the questions which were asked.

A statistical analysis in the social sciences is equivalent to the use of mathematics in the physical sciences: it is used to describe, refine, and test a model of reality. However, no analysis can ever prove the validity of a particular model of reality. The reason that is true is that there are always several models which will predict any given behavior. Anderson (1976, page 5) puts it like this: "For any well-specified behavior . . . there exist many different automata which can reproduce that behavior. Any well-specified behavior can be modeled by many kinds of Turing machines, register machines, post-production systems, etc. These formal systems are clearly different, and in no way can they be considered to be slight variations of one another." In other words, when we choose to generalize from a descriptive inference (for example, people with higher coping ratings performed better on achievement tests in our sample on our instruments) to a conclusion (coping skills facilitate the learning of cognitive material), we are doing more than reporting our findings. We are actually constructing a model of reality which has the prediction, among many others, that coping skills facilitate classroom learning. There are two primary reasons that we can never, with certainty, claim to have proven one particular explanatory model. One reason has been stated: there are always competing models which make the same predictions (high-achieving students are perceived by others as having more efficient coping skills) as the original model. The second reason is that it is never possible to test all the predictions made by a particular model. The most a researcher can do is to use the model to generate a few predictions and investigate whether those predictions are borne out. If they are, the model is supported, but it is not absolutely proven.

If there are two or more general models which are competing for acceptance in any field of study, it is generally most advantageous for a researcher to investigate a question for which the different models give different predictions. Such a study serves to help narrow the range of competing viewpoints in the field.

Any statistical analysis used to describe data carries its own implicit model of reality and has consequences for further generalizations which are derived from a study. The models used in the Teaching-Learning Interaction Study have been derived from certain general models of classroom activity and, in turn, have implications for what can be stated about a classroom. Some of these assumptions and implications will be discussed, along with the presentation of the analysis itself.

Questions

This study explores several broad categories of questions. One question is, what are the students like when they begin the school year? Specifically, what are the implications of the demographic membership (sex, ethnicity, SES) of the students for other characteristics such as coping skill, attitudes, self-esteem, or achievement? What are the initial interrelationships of the student achievement, coping, and personality variables? Ultimately, we wish to derive a model of the functional interrelationship of different categories of student characteristics.

A second question is, what is there about the students which influences their change in the classroom over the school year? Is a student with low self-esteem or low SES less likely to gain in achievement over the school year than a student with high self-esteem or high SES? What we wish is to develop a picture of the effect of several different personal characteristics on student change over the year.

A third question is, how does the classroom environment affect the change of the students, overall? The classroom environment is affected by the teacher's behavior and by the types of students present, among other influences. For example, is a teacher who manifests systematic, organized classroom behavior more likely to have a highly-achieving class than a teacher who is less systematic and organized?

A fourth question is, does the classroom environment interact with the student characteristics to affect student change? We attempt to see whether different environments differentially affect the processes of change in different kinds of students, so that different predictions can be made for different combinations of individuals and contexts.

For example, do we expect the coping ability of students to facilitate their achievement as much in a highly-systematic-organized classroom as it does in a classroom not characterized by systematic-organized teacher behavior?

Finally, as a fifth question, we wish to explore the etiology of the classroom environment. What causes the teachers to behave the way they do within the classroom? Generally, this will take the form of finding which teacher characteristics, representing demographic and personality variables, are associated with teacher behavior. For example, is a teacher who views himself or herself as attractive more likely to behave in a kindly-understanding manner than a teacher with a less-attractive self-image?

Assumptions

All of the statistical tests of inference are performed with multiple linear regression models. This approach does not necessarily imply any kind of special analysis, since every least squares analysis-of-variance procedure, including correlations and t-tests, can be reduced to multiple regression models. However, the format of presenting explicit full models makes both the assumptions and the tests themselves clearer.

A note about the use of the term "model" will be appropriate here. In an earlier section, "model" was used to denote a general picture of reality. For instance, we could construct a model which described the way that well-developed coping skills permit a student to absorb more material in a more effective manner. "Model", in the sense of multiple regression, has a more specific and specialized meaning. Here, "model" means the symbolic representation of the qualitative and quantitative relationships which are being tested or controlled. A mathematical model may be derived from a general model, but the two are sufficiently different to warrant a distinction. For example, a general model might postulate that coping improves achievement. A mathematical model derived from the preceding statement might take the form:

$$\text{Ach} = U + \text{Cop} + \text{Ei} \qquad (1)$$

Equation 1 encompasses the general model, but it has several built-in assumptions of its own. It assumes that both achievement and coping are linear, continuous variables, which are measurable in equal intervals. It further assumes that a change in coping anywhere along the absolute coping scale will be associated with the same degree of change in the achievement scale. Further, if equation 1 is used as a full or starting model, it assumes that there is no other relationship between achievement and coping.

The way tests are made for a particular relationship is for two models to be tested against each other. One model, called a full model, is built into a multiple regression procedure and used to predict the criterion. The full model contains the relationship under scrutiny. The second model, called a restricted model, is also built into a multiple regression procedure. The restricted model contains the assumption that the effect does not exist. If the full model is more predictive of the criterion than the restricted model, the effect being studied is assumed to contribute significantly to the prediction of the criterion.

As an example, let us suppose we are testing the strength of the relationship between coping and achievement. Our full model is equation 1, which gives us an R^2 (1). We use a second model

$$\text{Ach} = U + E^2 \qquad (2)$$

which assumes that coping does not predict achievement at all, and which also yields an R^2 (2). The actual test is performed using the formula

$$F(1,n) = (R^2(1) - R^2(2))/[(1-R^2(1)/(N-2)] \qquad (3)$$

where "N" is the number of subjects with data. The details and assumptions of the F-test and the multiple regression procedures can be found in any work on multiple regression, such as Cohen and Cohen (1975), Draper and Smith (1966), or Kerlinger and Pedhazur (1973). The main point is that if there is a significant difference in the predictability of two M/R models, the difference in the two models is significantly related to the criterion.

The set of analyses in this study has been divided into stages. The distinction between stages is artificial, insofar as concerns any real conceptual differences about the overall classroom processes we are attempting to explore. Nevertheless, each stage is primarily related to one or another of the previously stated research questions, and the stages represent a convenient way to discuss and present the results themselves. Therefore, the stage division will be used for the presentation of the analyses, as well as presentation of the results. The stage-to-question correspondences are: Stage I - what are the demographic characteristics which are associated with the personality and achievement characteristics of the students at the beginning of the year; Stage II - which demographic characteristics are associated with what changes over the school year; Stage III - what are the general relationships of skills and personality traits of entering students; Stage IV - (a) what student characteristics are associated with what kinds of change over the year; and (b) what kinds of classroom environments are associated with class change over the year; and Stage V - what are the environments and teacher behavior which affect the patterns of student change, and how are the patterns affected?

Change Measurement

Under ideal circumstances, in a situation where the effect of a treatment is evaluated in relation to another treatment, the groups or subjects on which the treatments are performed are equivalent. In that case, differences in the outcome are equivalent to differences in gain. A natural classroom setting however, provides minimal opportunity for having equivalent groups or subjects, so the control for initial differences must be statistical. The simplest means of doing this is to take simple (post minus pre) differences, but due to imperfect reliability and other features of testing, simple test differences are not generally recommended as a criterion (e.g., Cronbach and Furly, 1971). The recommended procedure, except in the case where it is the change rather than the outcome which is the focus of interest, is to use a covariance procedure in which the pre-test is included in both the starting and restricted model. This assures that any effect found will be unrelated to the pre-test differences. Richards (1975) advocates the use of raw change scores as being just as accurate and more interpretable, but this view has not been accepted by most educational researchers.

Another procedure which has been advocated when covariates are used is a correction for reliability (or unreliability) of the covariate (Cohen and Cohen, 1975). We will refer to this procedure as a true score analysis. The theory behind this correction is that the correction on the outcome is based upon the covariable scores, but that these scores themselves have an error component. It should be possible, according to this line of reasoning, to use the measured reliability of the covariate as an estimate of the error, and to apply some further assumptions so as to create a more accurate estimate of the covariable correction.

Dr. Thain Marston at the R&D Center for Teacher Education has examined the issue in detail. He notes that the correction procedure for covariate reliability involves using information from the criterion, which creates the questionable situation of a variable helping to predict itself. Further, Dr. Marston has prepared an empirical study using a Monte Carlo technique which shows that, in some circumstances, the true score correction raises the alpha level of the analysis. In other words, the number of analyses which show a significant relationship when the data are actually completely random is greater than five out of a hundred, when it should actually be no more than five out of a hundred. When the increased alpha level is taken into account, the number of significant results given by the true score correction is actually less than would be found with a regular analysis of covariance, when real differences exist.

For these reasons, we have decided not to include a true-score correction in our analyses. Dr. Marston has provided a preliminary version of his manuscript for inclusion in this report. It can be found in Appendix A.

Our change models will look like equation 4, where Crit pre, the pre-test,

$$\text{Crit post} = \text{Crit pre} + \text{Predictor} + E(1) \qquad (4)$$

remains in both the restricted and the starting models. The effect of this is to use the outcome as a criterion, with the assumption that all of the subjects in the study started with an equivalent pre-test score. Another way of putting the interpretation is that the predictor has an effect on the outcome that is independent of the relationship between the predictor and the pre-test. As an example, if coping ability of students were used to predict the achievement outcome of the students at the end of the year, and if the achievement pre-test were not included in the equation, we would not know whether coping actually predicted achievement processes or whether there was merely a coincidental relationship between the achievement outcome and the coping ability because (a) the achievement pre-test was related to the achievement post-test; and (b) the achievement pre-test was related to the coping ability measure. If the coping measure predicts achievement outcome with the achievement pre-test levels controlled, however, we can be more certain that coping represents a unique process which is conceptually distinct from simple level-of-achievement and therefore that its apparent effect on achievement change is a real one.

Classroom Analysis

The Teaching-Learning Interaction Study has from 800 to 1,600 students in each study sample. These students are all divided into classes. Technically speaking, the individual students are nested within classes. Similarly, individual classes are nested within teacher types. All this means is that there is only one class in which a given student is placed, and there is only one teacher to a class.

If our conceptual model indicates that classrooms have no unique effect on students, we can ignore the class groupings, since they would merely reflect the individual findings. However, most educational models assume that the classroom does have an effect. In this case, it becomes important to take the classroom into account in the analysis.

In order to examine the multitude of conceptual questions with respect to classroom data, at least three conceptually and procedurally distinct types of analyses may be employed, each pertaining to a substantively different question.

1. Analysis at the individual or general level. This analysis ignores the placement of children in particular classrooms. Outcome scores at the

individual level are used, regardless of the classroom in which the student is placed. The results of this kind of analysis provide information on the relationship of variables across the total sample, pooling children across classes. This is the typical approach utilized in most earlier studies of the effects of child variables on outcomes of schooling. This analytic approach answers the following question: Does the response to a treatment or instructional condition depend on the individual student's aptitude or characteristic? A typical M/R model for a general analysis is represented by equation 5, where only the individual students' scores are entered and there is no class information.

$$Ach = U + Cop + E1 \qquad (5)$$

2. Between-class analysis. The data for this analysis are assessed at the classroom level. The scores are expressed as class means on pupil variables, or as the teacher's scores on a variable that describes how he/she treats the class as a whole. Two approaches to the analysis are possible: (a) assigning a class mean to each student, thereby weighting each mean by class size; and (b) using just one class mean, which does not weight the score for class size. In most cases, the two methods yield similar results. In this project, we have decided not to weight the means by class size. The between-class analysis answers the question: Does the class, as a unit, respond to treatment differentially, depending on its average entry level on the predictor variable?

The between-class analysis is appropriate when one is assessing the overall effect of a classroom type, teacher style, or lesson plan. In these cases, one is interested in overall class gains or losses, while ignoring the individual variations within a class. If a school system is evaluating the usefulness of a particular curriculum or a unique teaching approach, the overall class gain or loss would be their focus of interest, even if some of the individuals in the classes differed. The reason is that the class as a whole is by assumption, exposed to the same condition, and so the treatment must be either accepted or rejected on the basis of the class results, rather than individual results.

One important possibility, which was not explored in this study, is to assess the use of different behavior by the same teacher toward different students in the same class. For example, a teacher might be more structured toward a low-coping student and more flexible with a high-coping student. Such an approach by the teacher, if carried out systematically, would make a focus on the class as a whole less important and less explanatory than is assumed for the between-class analysis. Indeed, the use of such a technique by a teacher would itself constitute a separate and distinct class treatment. It could be evaluated in comparison to a treatment in which a teacher presented a more consistent style to all students. The criterion for such a test would be the effect on the class as a whole.

One problem with such an approach is highlighted by studies such as Symonds (1955) and Ryans (1960) which show that teachers tend to act in an individually consistent pattern: "good" teachers like students and are fair but firm, while "less effective" teachers do not like students, are arbitrary, or favor certain students in a visible manner. If such individual stability is true (it was, in this study; see Chapter V), it might be more efficacious for educators to concentrate on a teacher's overall style rather than on particular behavior toward particular students. With one, limited exception, a comparative test of these two approaches was beyond the resources of the present study. The choice was made to record teacher behavior with respect to the class as a whole. (The exception was the interviewer ratings in Austin II of the teachers' diagnostic skill, prescriptive skill, and follow-through treatment of each of the special sample of students whose behavior was individually recorded by the classroom observers. These ratings of student-specific teacher behavior have not yet been analyzed due to restrictions of funding. They could be analyzed to find their relationship to individual student outcomes, including possible effects of student socioeconomic status and ethnicity.)

The analysis performed for a between-class test is illustrated by equation 6, where "Ach mean is a

$$\text{Ach mean} = U + \text{Cop mean} + E(1) \qquad (6)$$

vector of the class mean achievement scores, and Cop mean is a vector of the class mean coping scores. The number of data points in a vector is equal to the number of classes, rather than the number of students.

3. Pooled within-class or relative-standing analysis. In this approach, the unit of analysis is an individual student score, expressed as a deviation from the class mean. Although individual student scores are utilized, the conceptual question answered by this analysis is substantively different from the questions addressed by the other two approaches. The within-class analysis answers the following question: Does the outcome of the student depend on where the student stands in relation to other students in his class? For example, a student who is very high on coping with respect to the others in a low-coping class may have a higher achievement score than a student with the same coping score who is in a high-coping class, and who therefore is not higher in coping skills than most of the other students in his class. Such a finding might be interpreted in terms of a within-class dynamic: for example, superior achievement might be caused by the desire of a relatively competent student to remain at the top of his class, in contrast to the weaker

motivation of a student who is about average for his class, with little hope of rising to the top.

In the within-class analysis, the differences between-classes are controlled or levelled, so that it is only the position of the student within that student's own class which is examined as a predictor. A within-class analysis is illustrated by the comparison between the models represented in equations 7 and 8. Note that

$$\text{Ach} = U + \text{Class1} + \text{Class2} + \ldots + \text{Classn} + \text{Cop} + E(1) \quad (7)$$

$$\text{Ach} = U + \text{Class1} + \text{Class2} + \ldots + \text{Classn} + E(2) \quad (8)$$

the achievement and coping vectors contain one score per pupil and that the class vectors (Class1, Class2, ...) carry the information of whether a student is in a particular class or not. A class vector contains a "1" for a student if the student is in the class, and a "0" otherwise. The procedure is, very roughly, conceptually equivalent to adding or subtracting a score for each student in a class so as to make all the class means equal.

It is worthwhile to explore the relationships between the within-class and between-class analyses.

Within- and Between-Class Analyses:
Distinctions and Trial Interpretations

What is here termed a general analysis does not use class distinctions at all. The whole sample of subjects is treated as a single group, differentiated only by their score on the predictor variable. The between-class analysis uses only the class means: individual scores within each class are not used in the analysis. Finally, the within-class analysis uses only the relative position of the student within the class; in effect, the class mean differences are removed.

The criterion variance for the sample as a whole can be divided into two separate components: between-class and within-class. The analysis of the within-class effects determines how much of the within-class criterion variance can be explained by the within-class predictor variance. Similarly, the between-class analysis determines how much of the between-class criterion variance is explained by the between-class predictor variance. Thus, the total criterion variance that can be explained by the between-class and within-class analyses is equal to the variance that potentially can be explained by the general analysis. It does not follow that the amount of variance actually explained in one predictor, in the general analysis, is equal to the sum of the amounts of variance actually explained by the between- and within-class analyses of the effects of that one predictor on the criterion. (Some of the criterion variance remains unexplained by either analysis, on any one predictor.) The general analyses will not equal the sum of the between- and within-class analyses, in terms of the total variance accounted for, if the regression slopes of the between- and within-class relationships are different. Thus, the sum of the between- and within-class analyses presents a limiting case for the variance accounted for by the general analysis. This information leads to the following generalization: it is likely that if the general analysis proves significant, either the within-class or between-class analysis will be significant. Conversely, it is not the case that a significant between-class or within-class finding will presage a significant general finding.

The question with which we have to deal is "what do the between-class and within-class analyses tell us that the general analysis does not?".

There are three types of effects which may occur: contextual, class, and general. A contextual effect can be described as an effect which occurs within a class, regardless of other classes. One example of a contextual effect would be the case in which the students in every class in a school line up according to height. A student who is 4'5" in one class may be the tallest person in that class, but would be one of the shorter people in a class in which the average height is 5'5". If we have a measure of physical ascendancy, or interpersonal aggressiveness, we might very well find that the measure is related to the height of a student with respect to that student's class. A dynamic to explain such a finding would be that taller people tend to dominate shorter people with whom they associate closely. If we assume that the different classes are relatively independent from one another in the internal interactions of their students, we would find that classes with taller average height do not have, on the average, a higher degree of ascendancy.

If, however, it happens that students interact minimally within classes but tend to mingle outside, we might find that the absolute, individual height of the students is related to ascendancy, regardless of the mean height of the class within which a student works. We would find that classes which have taller averages have taller students in them and consequently more students with higher ascendancy scores. Therefore, those classes with taller averages will have higher ascendancy averages, just as the taller students within any given class will tend to have higher ascendancy scores than other individuals within that class. Both these effects will occur, although the class and the student makeup of the class are both irrelevant. This is the general case.

The class effect alone could occur in a school with a strong competitive tradition. Within classes, students are supportive of each other and ascendancy is discouraged, but a fierce competition thrives between classes. In this case, the height of a class is likely to be an advantage in its contests with other classes, but no ascendancy effect would appear within classes, due to the height of a student with respect to the rest of his class.

Thus, we have three different possible effects: a contextual (within-class), a class (between-class), and a general (without regard to class) effect. The corresponding findings, when a statistical analysis is performed, are: (a) within-class; (b) between-class; and (c) both between-class and within-class.

Difficulties of Interpretation

A complex world such as the one in which we are living seldom provides simple examples. We not only have to consider the three cases just discussed, but we must take into consideration the possibility that different combinations will appear. We must also decide whether the general analysis (without class distinctions) adds any interpretive power, or whether we are better off using just the between- and within-class analyses.

We have previously used the example of the relationship of height to assertiveness. This example had the advantage of presenting processes which are easily visualized. The disadvantage of this particular example is that the variables are not related to the variables in this study. So, to come closer to the subject matter under scrutiny, we will hereafter use as an example the possible effects of student coping skill on achievement.

The first problem with which we must deal is to answer the question "What do our statistical findings tell us about what takes place in the classroom?". Can we look at our pattern of findings and tell the manner in which coping affects achievement? For example, if we find that coping significantly affects achievement outcome, both within- and between-classes, can we say that coping is a student a priori factor whose effects are not modified by class grouping?

It turns out that we cannot. As was noted at the beginning of this chapter, there are many kinds of process sequences which could cause a given set of statistical findings. For instance, it may be that differences in coping skills within a class cause high coping students to approach material differently from low coping students; while class differances in coping skills may cause teachers to give different presentations of material to different classes. In this case, both between- and within-class effects will appear, but the class context and class groupings do make a difference.

To summarize, we distinguish between general effects and effects which occur as a result of within-class or between-class processes. General effects are usually determined prior to class grouping. If coping skills described the ways in which students approached subject matter, and if the manner of approach for each student were determined prior to the start of classes, the achievement due to coping would be just as predictable if students worked by themselves. Conversely, if the students' position within the class is a determinant of achievement, one would have to know the position of the student within the class. For example, a student who is higher in classroom coping may get more reinforcement within the class and put more effort into learning. In this case, one cannot make a totally valid prediction from the student's a priori coping score, but must wait to see to which class the student is assigned and what his rank is in that class.

Similarly, a class effect appears when there is some treatment applied to the class as a whole, or when the different interactional dynamics of different classes affect the students in systematically different ways.

We have distinguished between the general case, the within-class case, and the between-class case. Can the statistical analyses tell us which model of the classroom processes is correct? NO! A finding that both the between-class and the within-class analyses are significant may mean a general effect, or independent class and context effects, or both. In fact, there is no combination of statistical results which is not consistent with at least two models of classroom or student dynamics. Table 1 presents a list of different models of processes and the statistical findings which correspond to each model. Note that, in several cases, two of the explanatory models result in the same statistical findings.

TABLE IV-1

CORRESPONDENCE OF CLASSROOM MODELS AND STATISTICAL FINDINGS

Model	Finding	Hypothetical Example
1. A general effect exists.	Both the between-class and within-class analyses are significant.	The coping skills of a student are determinants of the capability of the student to learn material. As a result, students in a class do much better when they have higher coping skills; and classes with high coping skills do better than other classes with lower mean coping skills.
2. No general effect is present, both within- and between-class effects exist.	Both the between-class and within-class analyses are significant.	There is no general effect on coping. However, high coping classes provide a better learning atmosphere. Also, students within classes who find themselves more comfortable than most of the others in a class tend to be more motivated to learn.
3. A general effect exists, but a between-class effect in the opposite direction also exists.	Only the within-class analysis appears significant.	As in model 1, coping skills are an important determinant of learning. However, teachers with lower-coping classes have put extra effort into getting their classes to learn the material; the effort of the teachers acts counter to the mean coping differences between classes.
4. A within-class effect is present, but no between or general effects exist.	Only the within-class analysis appears significant.	There is a dynamic within each class affecting the students. The higher copers find the class atmosphere rewarding and are motivated to learn.

			One the rewarding aspects is that they get along better than most of the other students.
5.	A between-class effect, only, is present.	Only the between-class analysis appears significant.	The class as a whole is affected by the class coping mean. Higher coping classes present an atmosphere which is more facilitative of learning than lower coping classes (less talking, disturbances, etc.).
6.	A general effect is present, along with a within-class effect in the opposite direction.	Only the between-class analysis appears significant.	Coping skills facilitate learning, in general. However, teachers attempt to help students with low coping skills by giving them extra time and help. This counteracts the within-class effects of coping.
7.	A general effect is present, along with within- and between-class effects in the opposite direction from the general effect.	There are no significant findings.	Coping has a general facilitative effect on learning. However, teachers not only push harder for low-coping classes (between-class), but also give extra attention to low-coping students within classes.
8.	No effects occur.	There are no significant findings.	Coping is not correlated with achievement outcome in any way.

TABLE IV-2

	Between-class analysis significance	Within-class analysis significance	Interpretation
1.	0	0	No class or context effects
2.	+	0	Class effects
3.	0	+	Context effects
4.	+	+	Within- and between-class effects are in the same direction. Class and context effects cannot be discerned. Interpretation is at the level of the individual pupil.
5.	-	+	Within- and between-class effects are in different directions. Both a class and a context effect are assumed.
6.	+	-	

NOTES: "+" indicates a positive slope
"-" indicates a negative slope
"0" indicates the effect was not significant

"Class effect" indicates that being in one class has a different effect on the outcome that being in another class

"Context effect" indicates a within-class effect such that being above the class mean on the predictor in one's class has a different effect on the outcome than being below the mean on the predictor

The model pairs 1 and 2, 3 and 4, 5 and 6, and 7 and 8 show the same patterns of significant findings, but for different reasons. The choice between one of, say, two possible explanatory models (such as 1 versus 2) has to depend on the availability and weight of external evidence, either within the study or in the research literature. The researcher may also use a theoretical framework, consistent with previous research, to interpret the findings. For example, the researcher may postulate that a variable such as achievement is much more likely to result from long-term experience than from a short-term exposure and thus is more likely to be a general process than a combination of between- and within-class effects. The next step, obviously, in such a case, is to plan further studies which will distinguish between the theory of the researcher and any other theory which has strong plausibility and which is also consistent with the findings of the study.

Five instances will be considered for further exposition: (a) neither the within-class nor between-class effect is significant (case 1 in Table 2); (b) a significant between-class effect (case 2 in Table 2); (c) a significant within-class effect (case 3 in Table 2); (d) both between and within effects, in the same direction (case 4 in Table 2); and (e) both between and within effects, in opposite directions (cases 5 and 6 in Table 2). Each instance will be described separately. A hypothetical example will also be given with each instance, along with possible interpretations. For continuity, the same example will be used for each instance. The example will be peer-rated classroom coping (BRS-OR) predicting regressed gain in achievement. An interaction example will also be given, using teacher COR-SI (stimulating-inventive) by BRS-OR (coping skill), predicting achievement gain.

Instance 1: Neither the within- nor the between-class effects are significant. As previously stated, it is unlikely that in this case the general analysis would produce a significant finding, but even if it did there is no way to interpret it, without other, external evidence. (See case 2 in Table 1.)

Instance 2: Between-class effects, only, are significant. This result indicates that the class as a whole had an effect. If the effect is positive, a class with a high class mean on the predictor variable will be expected to have a high mean on the outcome variable. Although such a finding does not necessarily extend to every individual in the class, the fact that no within-class effect appeared indicates that something about the class as a whole significantly affected the outcome. Therefore, the finding would indicate that some kind of class process was operating which was influenced by the mean score on the predictor, although it may not necessarily have been solely determined by that predictor variable (it could be an external variable that affects both the predictor and the criterion).

For example, one can say that the higher the class mean on peer-rated coping, the higher the class mean on achievement gain. There could be any of several possible reasons for such an effect: (a) a class which is higher in coping ability may exhibit self-reinforcing behavior, such as offering and requesting assistance from peers; (b) alternatively, teachers with classes high in coping might feel it appropriate to present more challenging material; or (c) low coping classes include some very recalcitrant or obstructive students, unlike high classes, and this reduces the class achievement gain.

If teachers want to minimize such differences between classes, they first need to identify which of the alternatives best describes the situation. In the first case, they may try to encourage more mutual help in the low coping classes. In the second situation, they may want to give more challenging material to the low classes. In the third case, they might try to improve the coping behavior of the individual students who are chiefly interfering with class learning. It is not necessary for the teacher to deal differently with each individual student. If the teacher's diagnosis of the cause of the effect is accurate, and if the remedy selected is effective, either the classes will thereafter differ less in their coping skills, or the differences in coping skill will not so strongly influence achievement gain (particularly not in a detrimental direction).

A pupil by teacher between-class interaction effect could represent the case in which the stimulating-inventive level of the teacher is a positive influence for high coping classes but a negative influence for low coping classes. It might be that classes low in coping are confused or overwhelmed by an imaginative, multiple-option approach, while classes high on coping appreciate it. In this case, teachers could either be selectively matched with class coping level or they could modify their behavior to optimize class gain at a given coping level so as to benefit the majority of students.

Instance 3: A within-class effect is significant, but not a between-class effect. This finding may indicate a contextual effect where an individual's gain is affected by his position in his immediate class (but note the alternative possibility in Model 2, Table 1). To cite a hypothetical example, those students in a class who are higher on peer-rated coping than the class average are expected to have higher achievement gains than those in the class who are at or below the class means in coping. This finding holds, regardless of where the class mean stands, among all classes.

One explanation might be that high copers within a class are aware that they perform better and therefore feel more confident, try harder, and do better. Alternatively, classmates may favor good copers and encourage them to perform better. Still another possible explanation could be that teachers encourage good copers more than poor copers, or expect more from them and get it.

In the first instance, teachers might want to put extra effort into raising the self-confidence of low copers, possibly with a mastery-learning strategy. In the second situation, teachers might work with the students to develop a more uniformly supportive peer atmosphere. In the last case, teachers might try to increase their expectations of low copers (though obviously in ways at which the children could succeed); this might be the same remedial strategy as in the first situation.

A hypothetical interaction for the within-class case would include the situation where with highly stimulating-inventive teachers, high coping students do well, while with teachers low in stimulating-inventiveness, high coping students do poorly; whereas the opposite is true for low coping students.

One explanation of the hypothetical classroom dynamics is that those high in coping, relative to their class, gain in motivation and therefore do better with a creative presentation than with a routine one. One prescription might be for a teacher to give very stimulating treatment to high coping students. It might help this process to divide the class into more homogeneous groups. A second possible reason for the effect might be that low-coping students are already somewhat discouraged by perceiving themselves as less effective students than their high-coping classmates, may become overawed by highly stimulating teachers, and thus lose ground. A teacher high in stimulating-inventiveness may, in this case, try to raise the self-confidence of low-coping students, while a teacher low in stimulating-inventiveness may try to provide a greater amount of interesting work for the high-coping students.

Instance 4: Both within-class and between-class effects are significant and in the same direction. The most plausible conclusion in this case is that pre-existing individual differences (from the population mean) account for the overall effect, regardless of class placement or intraclass dynamics.

In a hypothetical example, both the class mean coping score and the position of the student within the class on coping are significant predictors of regressed gain on achievement. The simplest interpretation is that it is the student's general coping ability which affects gain, regardless of where the student is. (The best strategy would be to raise the coping skills of each individual as much as possible.)

The special case should be considered in which both the between-class slope and the within-class slope are of the same magnitude and the same direction. An illustration of this may be seen in Figure 1, where both the between-class and within-class effects may be plotted on a single line. In this situation, it is not necessary to know the class of a student or the position of the student with respect to the whole sample. The illustration in Figure 1 shows a case in which two students, each in a different class, have the same predictor score and are shown to have the same criterion score.

There are several ways in which this situation can occur. One is to have no class or context effect at all; this is equivalent to assigning students to groups randomly, but letting them work completely independently. The group designation has no more consequence in terms of effect than a social security card number. Another way in which the situation could occur is for both class and context effects to be influential in the same direction. Yet another way is non-random assignments of students to groups where the assignment is related to the criterion. Of the possibilities, the most economical explanation is that the class and context effects are null.

The situation in which a between-class slope and within-class slope are both significant and have the same sign will be interpreted as if they were the same magnitude. One reason is that the slope differences are not readily subject to interpretation, as is pointed out below. Another reason is the difficulty in determining when a slope difference is significant.

Cronbach and Webb (1975) interpret a special case in which the between-class slope and within-class slope are different, although both are positive. An illustration of this can be seen in Figure 2. As is shown, and as Cronbach and Webb explain, a person with a low score on the predictor variable would be expected to do better if placed in a low group rather than a high group. However, the logic holds for all the individuals in the population; any individual, no matter how high the predictor score, would do better in a group with a lower mean than in a group with a higher mean. The impossible conclusion is that every individual's gains would be optimized if he were placed in the lowest group.

A similar derivation, in the case where the between-class slope is greater than the within-class slope, leads to the conclusion that every individual would do best in the class with the highest predictor mean.

Obviously, such slope differences do not provide any sort of useful prescription for student placement.

There are two other reasons why slope results should not be used to simply prescribe pupil placement. One reason is the nature of the present sample: students were somewhat randomly assigned to classes. A sample in which students were even more selectively assigned may have different characteristics and may therefore not manifest the same effects.

Another reason for not using the within-class, between-class differences to prescribe student placement is that, as Cronbach, Deken, and Webb (1977) point out, the relative slopes can be affected by non-random, non-obvious pupil assignment, even in the absence of class or context effects.

Instance 5: In this instance, both the between-class and within-class analyses are significant but in different directions. Here it is likely that both class and context effects are working. If both the within- and between-class effects reflected the same general phenomenon, they would likely be in the same direction. Since the two analyses, class and context, are orthogonal, each will be interpreted separately.

Again taking the hypothetical example, suppose the between-class analysis showed that coping positively predicted achievement gain, but a negative prediction was found for the within-class differences on coping. The situation may result from a case where coping is generally facilitative, as shown by the class means effect, but the teachers within each class overcompensate by giving more attention to the students with fewer coping skills. A suggestion for such a case might be for teachers to make an effort to involve the high-coping students as well as the low. The teachers should also attempt to raise the mean coping level of the class in whatever way is possible.

Models, Tests, Corrections, and Interpretations Used in the Analyses

Demographic Differences at the Start of The Year

The full model for a determination of the demographic correlates of student differences at the beginning of the year is given in equation 9.

$$\begin{aligned}\text{Pre} = \; & U + E2 + E3 + SESL + SESQ + SESM + E2{*}SESL + \\ & E3{*}SESL + E2{*}SESQ + E3{*}SESQ + SEX{*}SESL + \\ & E2{*}SEX + E3{*}SEX + \text{Class1} + \ldots + \text{Classn} + E(1) \qquad (9)\end{aligned}$$

In the model, the criterion is the test given at the start of the year, labeled "PRE". The "E2" and "E3" are ethnicity vectors, by which a Black student is represented by a "1" in E2 and a Chicano student is represented by a "1" in E3. Similarly, a female student is represented by a "1" in the "SEX" vector, and a male is represented by a "0". The SES scores are represented in "SESL", and the squared score is represented in "SESQ". The L stands for linear, and the Q stands for quadratic term. If a student has a missing SES score, a "1" is inserted in the "SESM" vector; "0", otherwise. A student with a missing SES score has a "0" inserted in the SESL and SESQ vectors.

The within-class effects of ethnicity, SES, and sex were tested by themselves. In addition, the effects of SES, holding ethnicity constant, and the effects of ethnicity, holding SES constant, were examined. The differences between those students with a missing SES score and those with a valid score were also tested, as main effects. Further, when SESQ was used in an analysis, the SESL levels were always controlled, as Cohen (1975, 1978) describes.

The within-class ethnicity effect was tested by dropping the E1 and E2 vectors simultaneously and comparing the sum of squares error difference. The models are given by equations 10 and 11.

$$\text{Pre} = U + E2 + E3 + \text{Class } 1 + \ldots + \text{Class } n + E(1) \qquad (10)$$

$$\text{Pre} = U + \text{Class } 1 + \ldots + \text{Class } n + E(2) \qquad (11)$$

The comparison of models 10 and 11 tests for the overall effects of pre-test ethnic differences within classrooms.

Because ethnicity and SES effects are often confounded, the unique effects of SES partialling (or holding constant) ethnicity and the unique effects of ethnicity partialling SES were tested. The models for testing the unique effects of SESQ, SESL, and SESM are given in equations 12, 13, 14, and 10, respectively.

Pre = U + E2 + E3 + SESM + SESL + SESQ + Classes + E(3) (12)

Pre = U + E2 + E3 + SESM + SESL + Classes + E(4) (13)

Pre = U + E2 + E3 + SESM + Classes + E(5) (14)

Similarly, the unique effects of ethnicity are found by leaving "E2" and "E3" out of the model represented in equation 12.

Only the whole effect of sex was tested in the main effect analysis.

The interaction effects of ethnicity and SES are used to ask the question "does SES have the same effect for each ethnic group, or are the ethnic differences the same at all levels of socioeconomic status?". The interaction terms were added to the model of equation 12 to find the unique

(E2*SESL, E3*SESL; E2*SESQ, E3*SESQ)

interaction effects. Whenever an interaction effect was tested, all the main effects and lower-level interaction effects were controlled, so as to attribute any common variance to the simpler effect. Thus, the two models used to test the ethnicity by socioeconomic status curvilinear effect are given in equations 15 (full) and 16 (restricted).

Pre = U + E2 + E3 + SESM + SESL + SESQ + E2*SESL +
E3*SESL + E2*SESQ + E3*SESQ + E(6) (15)

Pre = U + E2 + E3 + SESM + SESL + SESQ + E2*SESL +
E3*SESL + E (16)

When sex was tested, neither ethnicity nor SES were controlled.

Graphing and Interpreting Results

When a result is shown to be significant, the effect must be interpreted. The B-weights given in the printouts for each of the vectors in the model are used for this purpose. The B-weights can be used either to find a trend or to graph curves of specific expected values. An expected value is defined as the curve of best-fit, given the model and its B-weights. The expected value curve minimizes the error sum-of-squares, although most subjects do not fall exactly on the curve.

An example of a trend is the case where the pre-test is predicted by SESL, seen in equation 17.

$$\mathrm{Pre} = aU + b\mathrm{SESL} + E(1) \qquad (17)$$

In this equation, "a" and "b" are the regression B-weights. Just by seeing the "b" is positive, we can see that a higher SES level generally implies a higher pre-test score.

If we have a significant quadratic effect, such as equation 18, we would need to actually graph the values since both the linear and squared

$$\mathrm{Pre} = aU + b\mathrm{SESL} + c\mathrm{SESQ} + E(1) \qquad (18)$$

SES values (weighted by b and c) would influence the curve. The general procedure for the TLI study has been to graph the expected criterion values, as calculated from predictor values ranging from -2 to +2 standard deviations, at .5 standard deviation intervals. As an example, suppose we wished to find the curve for equation 18. The value of "a" is 5, "b" is 2, and "c" is 3. Suppose, also, the mean of SES is 10 and the standard deviation is 2. We would then wish to find the expected values for these values of SES:

Standard Score:	-2	-1.5	-1.0	-.5		.5	1.0	1.5	2.0
SES Value:	6	7	8	9	10	11	12	13	14
Expected Pre-Value:	125	166	213	266	325	390	461	538	621

The expected "Pre" value would then be obtained by plugging the SES values into equation 18 which yields, for an SES value of 6,

$$\mathrm{Pre} = 5 + 2 \times 6 + 3 \times 6^2 = 5 + 12 + 108 = 125$$

The expected value for any other models are also found by this procedure.

Demographic Differences in the Outcome

This part of the analysis examines the effect of ethnicity, sex, and SES upon the outcome scores of the sample students at the end of the year. Technically, we cannot say that the demographic characteristics caused the outcome differences, but only that the characteristics were *associated* with the outcome differences. The distinction is important, not only from a logical point of view, since we are working with observational and correlational data, but from a substantive point of view. No one would claim, for instance, that there is something intrinsic in a low SES which causes differences in attitude or achievement, as compared to a high SES. However, there may be background or experiential factors that influence attitude or achievement which are *associated with* or *correlated with* low and high SES and which therefore show a relationship to *outcome* differences. Thus, we must be careful to distinguish the concept of demographic factors *causing* differences, from the concept of demographic factors being *related to* difference-producing factors.

In a study of outcomes, one must note that often there are differences at the beginning of the study; in this case, at the beginning of the school year. If a person high at the beginning of the year is high at the end and if a person low at the beginning is low at the end, even if there are real differences in overall mean outcomes scores, one wonders what one knows at the end which wasn't apparent or predictable from the beginning.

Similarly, one would suspect that a person who ends the year with a high score and who began with a high score has gone through a different experience from a person who ends the year with a high score but who began with a low score.

One way of arriving at this kind of distinction has been the use of difference scores. Such scores, while giving an idea of the change from pre-to-post, have been criticized by Cronbach and Furby (1970), among others. One primary reason is that such gain scores are highly related to the pre-test scores. A much better procedure is to use an analysis of covariance in which the pre-test differences are partialled out or "controlled for". Conceptually, this is an attempt to determine criterion differences under the assumption that all the subjects under study began the study with equivalent pre-test scores. Cronbach and Furby noted that the analysis of covariance is appropriate for controlling subject differences within treatment groups, but risky for controlling pre-test differences between groups.

When the analysis of covariance is used, one relationship which should be tested is the slope difference. "Slope difference" describes the situation where the pre-test has a different relationship to the criterion for the different treatment groups. In the case of a continuous predictor vector, a slope difference is tested by an interaction vector (Pre-test * Predictor).

The full model which is used in the test for demographic effects upon the outcome is

$$\begin{aligned} Crit = U + XL + XQ + XM + X{*}E2 + X{*}E3 + X{*}SESL + E2 + E3 +\\ SESM + SESL + SEX + E2{*}SESL + E3{*}SESL + E2{*}SEX +\\ E3{*}SEX + SEX{*}SESL + Classes + E(1) \end{aligned} \quad (19)$$

SESQ was left out because preliminary analyses had indicated that it was not an important predictor of outcomes.

The symbols in equation 19 are the same as in equation 9, with the difference that the post-test given at the end of the year is the criterion and the pre-test is represented by the XL vector. The XQ and XM vectors hold the same relationship to XL as SESQ and SESM do to SESL.

Slope Effects

The first set of analyses to be performed were the slope tests. XM; XL; XQ; XE2 + XE3; XSESL were added, hierarchically, to equation 20 to determine, respectively, the significance of the pre-test missing,

$$\mathrm{Crit} = U + \mathrm{Classes} \tag{20}$$

linear, quadratic and interaction effects. In general, only the pre-test missing and linear (XM, XL) were partialled from the predictors.

Main Effects

The effects of ethnicity, SES, and sex were determined from the addition of each main effect vector to the model in equation 21.

$$\mathrm{Crit} = U + XM + XL + \mathrm{Classes} \tag{21}$$

The unique effects of SES partialling ethnicity and ethnicity partialling SES were tested.

Interaction Effects

The effects of SES interacting with ethnicity and sex interacting with SES and with ethnicity were tested by adding the interaction vectors to a model which included the main effects involved in the interaction. For example, equations 22 and 23 show the full models for testing ethnicity by SEX and ethnicity by SES, respectively.

$$\begin{aligned}\mathrm{Crit} = {} & XM + XL + E2 + E3 + SEX + E2{*}SEX + E3{*}SEX + {}\\ & \mathrm{Classes} + E(1)\end{aligned} \tag{22}$$

$$\mathrm{Crit} = XM + XL + E2 + E3 + SESM + SESL + E2{*}SESL +$$

$$E3*SESL + Classes + E(1) \qquad (23)$$

When any of the main effects or interactions are graphed, the mean value of the pre-test is used in the equation to find the expected values. Therefore, the curve of best fit is found using the statistical assumption that everyone started out with the mean pre-test score.

Between-class Effects

All of the models up to now have had class vectors for the purpose of removing between-class differences. However, there was a between-class demographic effect tested. Using the class means as data points, the effect of class SES means upon the outcome was tested, as shown in equation 24. The interpretation is the same as for any of the other models, except that

$$Critmean = U + Xmean + SESLmean + SESQmean + E(1) \qquad (24)$$

it is class mean trends which are described rather than individual differences within classes.

Class and Student Characteristics Predicting Outcome

The analyses in this section were undertaken to find out what kinds of aptitudes, characteristics, environments, and processes affected student outcome. The primary conceptual distinction between this section and the previous section on demographic influences is that this section focuses on the actual characteristics, skills, and processes which influence outcome, while demographic differences are only marker-variables which reflect more specific familial or cultural variables that may directly affect outcomes of schooling.

This section of analyses investigates the three separate sources of change: (1) individual differences within the classroom; (2)

class-composition differences; and (3) teacher or class process differences. The individual difference scores are from the pre-test measurements of the students on attitudes, achievement, coping skills, and self-esteem. The class compositions are described by the class mean pre-test scores, and the teacher process measures are the COR ratings given to the teachers.

Individual Differences Within-Class

The purpose of this analysis is to find whether characteristics of the student which are directly reflective of the student's confidence, tenacity, previous experiences, and other learning processes are important in predicting (and possibly influencing) outcome. In the within-class analysis, the students in a class are compared to the other students in that class and to students in other classes; the variable being examined is relative position within any class. The interpretation of a within-class finding is that either there is an intraclass dynamic, or there is an individual student effect regardless of class. The last dynamic should, however, show up in a between-class effect, as well.

The within-class student effect is tested by means of equation 25.

$$\begin{aligned}\text{Crit} = U + XM + XL + XQ + XL{*}P + XL{*}PQ + XQ{*}PL + \\ XQ{*}PQ + PM + PL + PQ + \text{Classes} + E(1) \qquad (25)\end{aligned}$$

In equation 25, the symbols are the same as for equation 19, except that "P" represents a continuous vector of the student characteristic as measured at the beginning of the school year.

Pre-test Effects. The relationship between the pre-test and the criterion (given at the end of the semester) is found by adding XM, XL, and XQ, respectively and hierarchically, to the model represented in equation 26.

$$\text{Crit} = U + \text{Classes} + E(1) \tag{26}$$

The purpose of XM is to determine whether those people with missing scores on a pre-test were significantly different (in terms of the post-test mean) from those with a pre-test score present. As Cohen and Cohen (1975) point out, those with a missing pre-test score can be regarded as a distinct group. A group such as this can be tested for different predictor effects by including a XM*P vector. However, as this would add a layer of complexity of doubtful theoretical interpretability, it was decided not to include the pre-test missing interactions.

However, since the pre-test was partialled from all effects, it was important to determine, for example, whether the criterion pre-test predicts the criterion post-test in the same way for subjects whose score on the independent predictor is one standard deviation above the mean, as it does for subjects whose score on the predictor is that far below the mean. This question was tested by including the X*P, X*PQ, XQ*P, XQ*PQ vectors, hierarchically, in the model shown by equation 25.

Main Predictor Effects. The effect of the predictor on the criterion (assuming that the pre-test differences have been controlled) is tested by adding the PM, PL, and PQ terms, hierarchically, to the model of equation 27. This tests, hierarchically, whether there are criterion

$$\text{Crit} = U + XM + XL + \text{Classes} + E(1) \tag{27}$$

differences: (1) for those pupils with a missing predictor score, as opposed to those pupils with a predictor score present; (2) that have a linear relationship to the predictor value; or (3) that show a curvilinear relationship to the predictor.

Graphing the Best-Fit Models

As was the case with the demographic analyses, the B-weight for the PL effect is sufficient for giving the relationship between the criterion and the predictor (positive or negative). However, for curvilinear effects (PQ) or interaction effects (X*PL; X*PQ) the model generally has to be graphed. For example, a curvilinear effect can show up as any of the curves in Figures 3 through 6.

In the case where a main effect was not involved in an interaction with the pre-test, the expected values of the criterion are found with the pre-test value set at the mean, and the predictor values ranging from two standard deviations below the mean to two standard deviations above the mean.

If the pre-test _is_ involved in an interaction with the predictor, such as an XL*PL term, we draw several curves: each curve is one case in which the predictor determines the criterion, for a separate value of the pre-test. For example, equation 28 uses the terms "XL*PL". In order to

$$\text{Crit} = aU + 6X + cXM + dPL + eXL*PL \qquad (28)$$

graph three curves, we plug in (for example) a value of "X", say Xi, and derive equation 29, which gives a different linear equation for each value

$$\text{Crit} = (a + 6xi) + (d + exi)PL \qquad (29)$$

of "xi" used. (See Figure 7 for an example.)

Note that equation 28 does not include classes. The reason is that when the class vectors are included in the multiple regression matrix, the class differences are controlled, and the effect is _strictly_ a _within-class_ effect. However, the class differences are not included in the expected values curve when the figure is _plotted_.

Class Composition Differences as Predictor

The class composition is the class mean on some pupil variable. For instance, there is a class which is a high achievement or high coping class, as opposed to a class which is low achieving or low coping in relation to the other classes in the sample. Even though both the class composition and the teacher process analyses are between class measures, they are distinguished by the nature of the predictor variable. In the one case, the predictor variable is determined by the student scores at the beginning of the year, exclusive of teachers (class composition), and in the other case (teacher process) the class score is determined by the teacher characteristics, with a minimal contribution by the class (assuming the teacher behavior is relatively stable from year to year over a broad range of types, as findings in Chapter V illustrate.

The full model for testing the effect of the class composition on class outcome is given by equation 30. The only differences between the between-class model in equation 30 and the within-class model represented by

$$\begin{aligned}\text{Critmean} = U + \text{XLmean} + \text{XQmean} + \text{XLmean}*\text{PLmean} + \\ XQ*PL + X*PQ + XQ*PQ + PL + PQ + E(1)\end{aligned} \tag{30}$$

equation 25 are: (1) the variables in equation 29 represent class means rather than individual scores; (2) the class vectors used for controlling class differences in the within-class analysis are not needed for the between-class analysis, since the class differences themselves are under study; and (3) there are no missing data provisions because it is class means, rather than individual scores, which are used as data points. The number of classes with no data on a particular variable is very small or non-existent. Those classes with missing means in any analysis are simply excluded from that analysis.

The significance testing, results, and graphing are performed precisely as in the previous section on individual differences within classes. However, the interpretation must deal with class characteristics as a whole, rather than with students within classes.

Teacher Process Predicting Class Outcome

The model for this analysis is exactly the same as that shown by equation 30 in the previous section. The only difference is that the predictor is the general teacher behavior within a class, rather than the mean class level on a particular dimension. A "TL" would replace the "PL" to signify a teacher variable.

Correct Variance Base

When a result is reported, the percentage of variance which the effect accounts for is also given. The raw percentage is simply the semipartial correlation squared. As an example, take the model of equation 31. If the

$$\text{Crit} = U + XL + PL + \text{Classes} + E(1) \qquad (31)$$

"PL" vector is dropped from the model, the difference in the R^2 of the two models will give the amount of variance of "Crit" which is explained by "PL". One must, however, remember that the effects of "XL" and "Classes" were controlled for each model. If these two categories had any predictability for the criterion at all, it would be virtually impossible for the "PL" term to explain all the covariance, even if it were perfectly correlated with the criterion. To correct for this anomaly, the percentage of variance is given as a squared partial: that is, the amount of variance given is the percent of variance, using the variance not accounted for by the covariate (X classes) as a base. The correction is given in equation 32.

$$\% \text{ variance corrected} = (R^2 \text{ full} - R^2 \text{ restricted})/(1 - R^2y.\text{covariates}) \quad (32)$$

When an effect is graphed, both the predictors and the criteria are shown in terms of standard deviations rather than raw scores. The standard deviation of the criterion is also corrected to take into account the fact that some variables were partialled from both the full and restricted models. For example, suppose the "Classes" and "XL" vectors accounted for 30% of the criterion variance. Only 70% of the total variance is left to show the effect of any additional predictor, such as PL. If PL appears to account for another 20% of the total criterion variance, it actually accounts for 20 x 100/70 = 28.6% of the variance it could potentially affect. Similarly, since the standard deviation is the square root of the variance, the standard deviation differences predicted by the "PL" vector are not of the total criterion variance, but the variance left after the covariates are partialled. Therefore, the standard deviation of the criterion used to standardize the graphed expected values is given in equation 33.

$$\text{Standard deviation} = 1 - R^2y.\text{covariates} \quad (33)$$

Thus, in the case of a within-class analysis where the criterion is the pre-test, the correction factor is R^2y.Classes. In a within-class analysis where the criterion is the outcome with the pre-test partialled, the correction factor is R^2y.Classes,XL. In a between-class analysis where the outcome is the criterion, the correction is R^2y.XL. One exception must be made to these rules. If the predictor is an interaction which includes the pre-test as a term, the pre-test is not included as a correction factor even though it is partialled from the outcome. The reason for this is that a slope interaction indicates that no single pre-test slope is best and that the pre-test has as different predictability for different levels of the predictor. Therefore, no single estimate of the XL influence is sufficiently accurate to use as a correction factor.

Interaction of Pupil and Teacher Characteristics

One question motivating the study is, does teacher classroom behavior affect the way in which pupil differences affect pupil outcomes within the classroom. Alternately, does the classroom type, as defined by the mean classroom score on pupil characteristics, change the way in which teacher behavior produces outcome? A series of pupil by teacher interaction models has been created to test these two broad questions.

Classroom Characteristics and Teacher Effects

The analysis which asks whether the type of classroom modifies the teacher class effect is between-class analysis, using only class means. The full model is given by equation 34, where each vector is composed of class

$$\begin{aligned}\text{Crit} = U + XL + XL{*}PL + XL{*}PQ + PL + TL + PQ + TQ +\\ PL{*}TL + PL{*}TQ \qquad (34)\end{aligned}$$

means and has the same meaning as it had in the previous sections. Classes with missing values were not included. Also, only the pre-test by pupil predictor vectors were tested; the pre-test by teacher interactions were not tested. Similarly, the interactions with the teacher vectors were examined, of the linear pupil class mean vectors, but not the quadratic pupil vectors. The reasons for leaving out the pupil quadratic interactions are: (1) we were interested in what affects the teacher influence; and (2) we did not consider a PQ*T term likely to add much to a PL*T term and wished to avoid overdetermining the regression equation.

Pupil Within-Class and Teacher Effects

The teacher behavior is an overall class variable and, to a great extent, affects the class as a whole. It is legitimate, then, to ask whether the teacher behavior causes changes in the relationship between the pupil characteristics (within classes) and the outcome. For example, one hypothesis might predict that in classes where the teacher is not systematic-organized, the coping differences of the students within the class would have a large influence on the student outcomes in something like achievement, because in an unorganized classroom a student is left more to his/her own resources. On the other hand, the coping skills of a student may be of less importance in an organized classroom that is geared to the students.

The full model which was used to assess the interaction of the within-class pupil characteristics and the teacher features is given in equation 35.

$$\begin{aligned}\text{Crit} = {} & U + X + PL + PQ + PL*TL + PL*TQ + PQ*TL + \\ & PQ*TQ + X*PL + X*PQ + X*TL + X*TQ + X*PL*TL + \\ & X*PL*TQ + X*PQ*TL + X*PQ*TQ + \text{Classes}\end{aligned} \tag{35}$$

Note that in equation 35, the "T" term is actually a class mean; that is, each teacher variable has one score for each class. However, since the individual students are used in the vectors, the teacher score is put in for each student. An example of this system is given in equation 36.

	y =	U +	P +	T +	P*T
Class 1	y11	1	3	4	12
	y12	1	1	4	4
	y13	1	2	4	8
Class 2	y21	1	9	8	72

	y22	1	8	8	64	
	y23	1	10	8	80	
Class 3	y31	1	15	7	105	
	y32	1	17	7	119	
	y33	1	21	7	147	(36)

The vectors are divided into sets because of the number which are used.

Pre-test Interactions. An overall test was made to see if the set of pre-test by pupil by teacher interactions (X*PL*TL, X*PL*TQ, X*PQ*TL, X*PQ*TQ) was significant. Next, the two sets of the pre-test by main effect interactions were tested (X*PL, X*PQ), (X*TL, X*TQ). Finally, "PQ*TQ", "PQ*TL", "PL*TQ", "PL*TL" were dropped from the model in equation 37 sequentially.

$$PQ*TQ + \text{Classes} \qquad (37)$$

All those students with missing scores were dropped from this analysis. Their characteristics had been explored previously, and their inclusion would add complexity to an already complex model. Further, the inclusion of missing value vectors would be unlikely to give any additional information for the questions motivating the analyses described in this section.

Treatment of Ethnicity

The model given in equation 35 would not be suitable when ethnicity was the pupil characteristic used as a predictor. The reason is that ethnicity designation is a group membership rather than a value along a scalar dimension. Therefore, the model in equation 35 has to be modified so that the pupil characteristic is replaced by two group membership vectors, as shown in equation 38. "E1" and "E2" represent group membership for,

$$\begin{aligned} Crit = {} & U + X + E1 + E2 + E1*TL + E2*TL + E1*TQ + \\ & E2*TQ + X*E1 + X*E2 + X*TL + X*TQ + X*E1*TL + \\ & X*E2*TL + X*E1*TQ + X*E2*TQ + Classes + E(1) \end{aligned} \qquad (38)$$

respectively, Blacks and Chicanos.

Convenience Screening

The within-class analysis is quite expensive with respect to computer time because of the inclusion of the class vectors. Therefore, we decided not to perform a within-class analysis of every possible pupil by teacher interaction, but to go through two screening procedures. The first is to perform a general pupil by teacher analysis in which class vectors are not included. As Cronbach, Deken, and Webb (1976) point out, this procedure gives a confound of within-class and between-class results. Nevertheless, our analyses have shown that, for our data, the majority of variance is within-class variance. Thus, we assume that if a within-class effect is present, it has a large probability of appearing in the general analysis.

One way in which an effect could be present and yet not appear in the general analysis is for the B weights of the between-class analysis to have a different direction from the B weights of the between-class analysis (see Cronbach, Deken, and Webb, 1976). Therefore, our second screening procedure is to perform a within-class analysis for any effect which was significant in the between-class analysis. This used the worst-case assumption that the significant between-class analysis may, in fact, have been in the opposite direction from a within-class trend.

To summarize, then, a within-class analysis was performed for any pupil-teacher interaction which was significant in the between-class analysis or the general analysis.

Appropriate Components of Variance

In all the analyses previously described, the test of significance has been carried out using a hierarchical series of models. The F-test is described in equation 39. One underlying assumption of this test is that

$$F = [(R^2F - R^2\text{restricted})/Np] \; / \; [(1 - R^2\text{full})/(NS - NLIF)] \qquad (39)$$

Np = number of predictor vectors which were dropped from the full model to create the restricted model

NS = number of subjects or occasions in the analysis

NLIF = number of linearly independent vectors in the full model

all the variables are fixed. In fact, this is the assumption which was made for most of the analyses. The primary reason was one of convenience: a model that used the assumption that the pupil variable was random rather than fixed would almost triple the size of the models used in the testing. The validity of using the "fixed" assumption was tested by analyzing some of the data according to "random" assumption and finding that there were no substantial differences in the results.

A Summary of the Analyses Used
to Test the Propositions of the Study

Specific Propositions

1. Student entry levels of achievement, attitudes, self-esteem, and coping skill will be positively intercorrelated. Analysis: (General) correlation of individual student scores pooled across classes.

2. Student entry level on each of these characteristics will positively influence change (regressed gain) on each student outcome. Analysis: (between- and within-class) multiple linear regression with pre-test as a covariate, linear and quadratic terms for each predictor, and interaction terms (e.g., pre-test x predictor).

3. Student entry level on each characteristic will positively affect school attendance. Analysis: Correlation (within).

4. Student entry levels will positively affect time-on-task behavior. Analysis: Regression (within).

5. Student entry levels will positively affect classroom behavior. Analysis: Correlation (between, for Cor-Pupil; within, for Academic and Socio-Emotional Coping.)

6. Teacher age and experience will correlate positively with desirable personal traits. Analysis: Correlation.

7. Teacher age and experience will positively affect teaching behavior. Analysis: Correlation.

8. Teacher age and experience will positively affect class behavior. Analysis: Correlation (between).

9. Teacher age and experience will positively affect student attendance. Analysis: Correlation (between).

10. Teacher age and experience will positively affect student time-on-task. Analysis: Regression (between).

11. Teacher age and experience will positively affect student outcomes. Analysis: Regression (between).

12. Positive teacher traits will positively affect teaching behavior. Analysis: Regression (between).

13. Positive teacher traits will positively affect class behavior. Analysis: Regression (between).

14. Positive teacher traits will positively affect student attendance. Analysis: Regression (between).

15. Positive teacher traits will positively affect student time-on-task. Analysis: Regression (between).

16. Positive teacher traits will positively affect student outcomes. Analysis: Regression (between).

17. Individual teaching behavior will show stability across time and subjects. Analysis: Correlation of observer and peer ratings, within and across years.

18. Positive teaching behavior will positively affect class behavior. Analysis: Regression (between).

19. Positive teaching behavior will positively affect student attendance. Analysis: Regression (between).

20. Positive teaching behavior will positively affect student time-on-task. Analysis: Regression (between).

21. Positive teaching behavior will positively affect student evaluations of the teacher.

22. Student time-on-task will correlate positively with individual coping behavior. Analysis: Correlation (within).

23. Student time-on-task will positively affect student outcomes. Analysis: Regression (between and within).

24. Individual classroom coping behavior will positively affect student outcomes. Analysis: Regression (between and within).

25. Positive class behavior will positively affect class outcomes. Analysis: Regression (between); Cluster analysis and regression.

26. Positive teaching behavior will positively affect student outcomes. Analysis: Regression (between).

27. Positive student evaluations of teacher (class means) will positively affect student outcomes. Analysis: Regression (between).

28. Teacher x student interaction effects will affect student outcomes. Analysis: Regression (between and within).

29. Higher student SES will positively affect student entry levels. Analysis: Regression (between and within).

30. Higher student SES will positively affect individual coping behavior. Analysis: Regression (within).

31. Higher student SES will positively affect student time-on-task. Analysis: Regression (within).

32. Higher student SES will positively affect student outcomes. Analysis: Regression (between and within).

33. Effects of teaching behavior on student outcomes will vary with student SES. Analysis: Regression (between and within).

34. Student ethnic groups will be randomly assigned to teachers. Analysis: Cluster analysis and ANOVA.

35. Student ethnicity will affect entry levels. Analysis: Regression (between and within).

36. Student ethnicity will affect individual coping behavior. Analysis: Regression (within).

37. Student ethnicity will affect student time-on-task. Analysis: Regression (within).

38. Student ethnicity will affect student outcomes. Analysis: Regression (within, partialling SES).

39. Student ethnicity will interact with teacher behavior in affecting outcomes. Analysis: Regression (within).

40. Student sex will affect entry levels. Analysis: Regression (between and within).

41. Student sex will affect individual coping behaviors. Analysis: Regression (within).

42. Student sex will affect time-on-task. Analysis: Regression (within).

43. Student sex will affect student outcomes. Analysis: Regression within).

General Propositions

1. The student measures will prove reliable and valid. Analysis: Correlation and regression, as appropriate (see Chapters III and VII).

2. The teacher measures will prove reliable and valid. Analysis: Correlation and regression, as appropriate (see Chapters III and V).

3. Many of the relationships among teacher and student measures will be curvilinear. Analysis: Inclusion of quadratic terms in all regression analyses; test for sufficient number of "significant" effects, out of the relevant number of analyses performed.

4. Findings will replicate across samples and sites. Analysis: Compare findings on each analysis, across samples and sites.

Figure 1

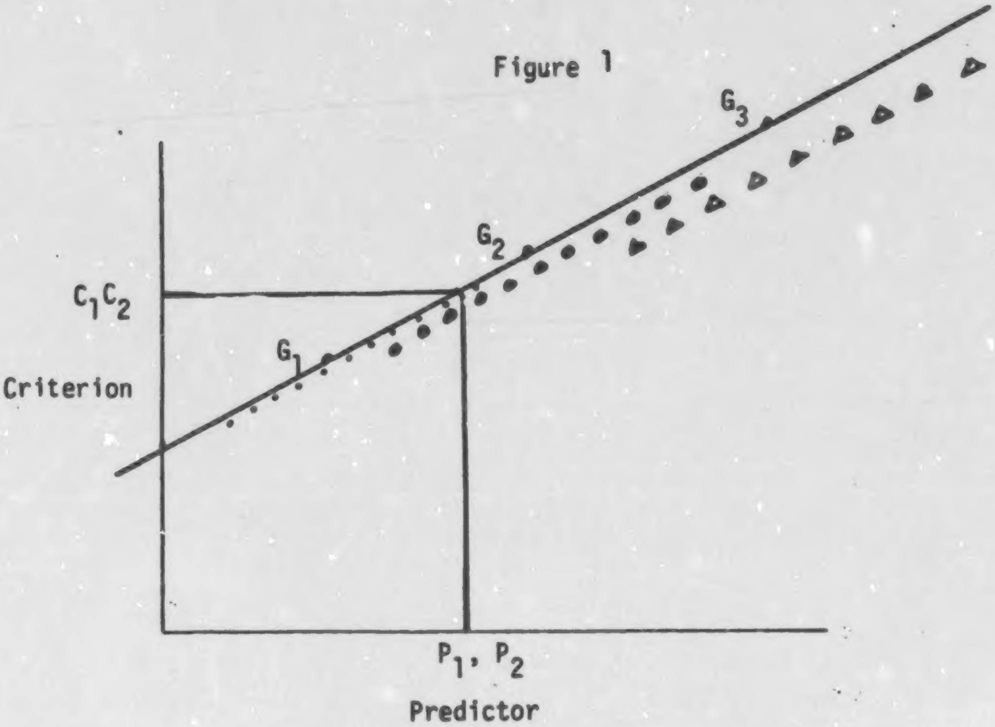
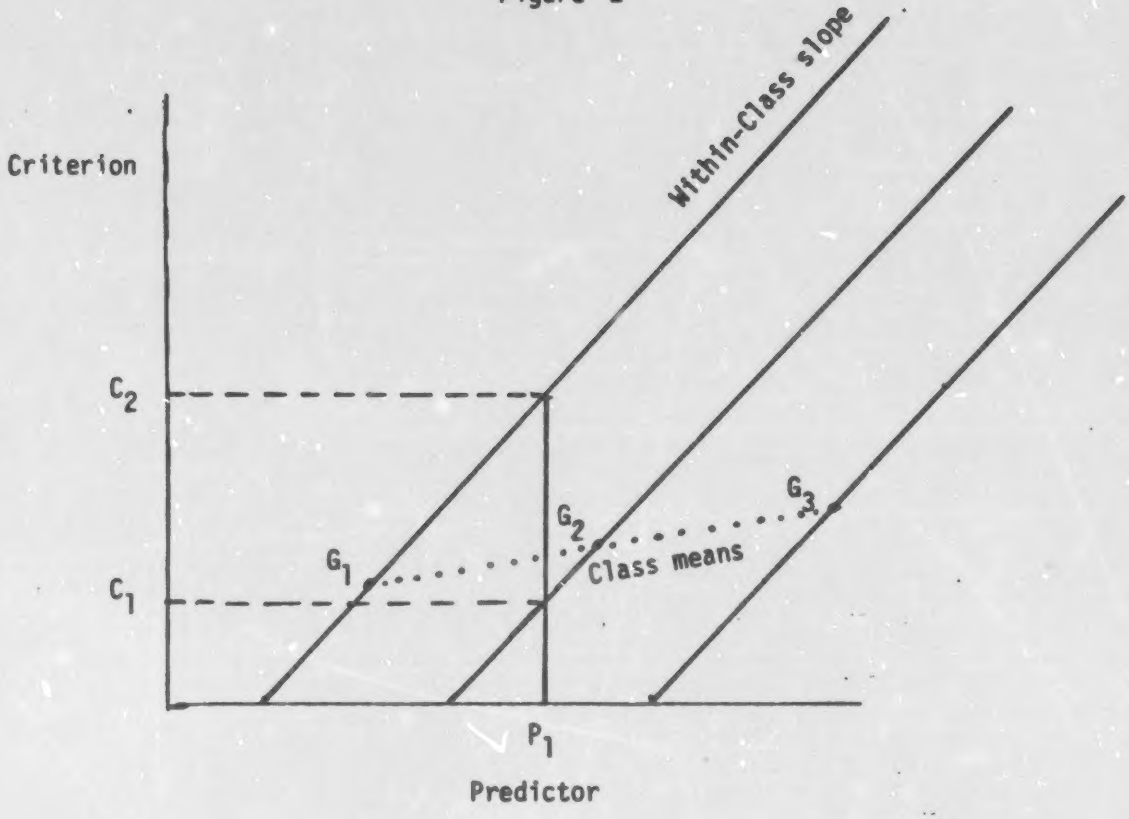


Illustration of equal slopes between-classes and within-classes. G_1, G_2, and G_3 represent the means of their respective groups. P_1 represents an individual in class G_1 with a particular predictor score, and P_2 represents an individual in class G_2. Both individuals are expected to have the same criterion score, which is labeled C_1C_2. The ..., 000, ΔΔΔ represent the boundaries along the line of groups G_1, G_2, and G_3, respectively.

Figure 2


Within-Class slope
Criterion
C_2
C_1
G_1
G_2
G_3
Class means
P_1
Predictor

Graph of the case in which the within-class slope is greater than the between-class slope. An individual with predictor score P_1 is expected to have criterion score C_1 if in group G_2 but is expected to have criterion score C_2 if in group G_1, which has the lower mean.

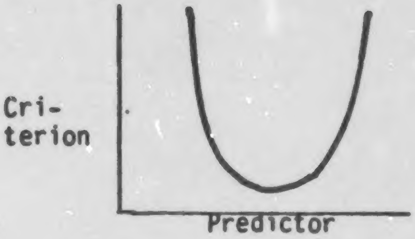


Figure 3

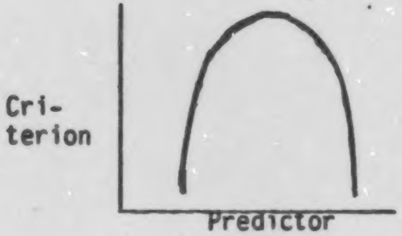


Figure 4

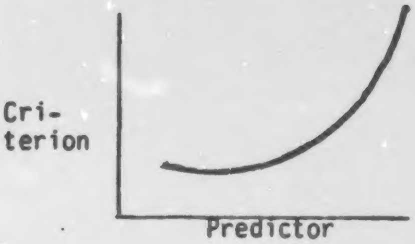


Figure 5

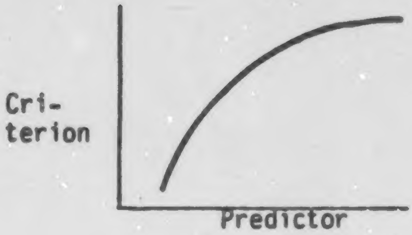


Figure 6

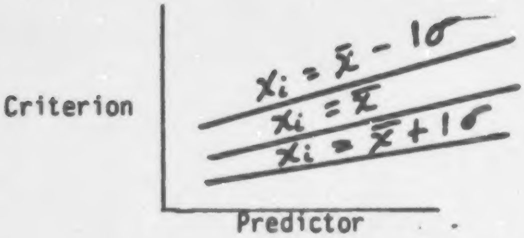


Figure 7

THE INTERPLAY OF TEACHER AND STUDENT CHARACTERISTICS THAT AFFECT STUDENT LEARNING, ATTITUDES, AND COPING SKILLS

Final Report of the Teaching-Learning Interaction Study (TLIS)

Volume II

Robert F. Peck, Principal Investigator
with
Ronald B. Fox
Donald J. Veldman
Glen C. Payne
M. Guadalupe Cisneros-Solis

The Research and Development Center for Teacher Education
The University of Texas at Austin

October 1982

This is a final report on a study supported in part by the National Institute of Education ~~Contract NE-C-00-3-0066~~. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

Please do not quote or cite this report without the written permission of the project director.

36A

TABLE OF CONTENTS

Volume II

Introductory materials i
  Table of Contents i
  Table of Figures xvii

CHAPTER V -- Teachers V-1
  Research Design V-1
  Research Measures V-2
  Presage Measures V-4
    Demographic Data on Teachers V-4
    Teacher Personality Traits V-6
  Teacher Process Measures V-8
    Classroom Ratings of Teachers V-8
      Kindly-Understanding (KU) V-9
      Stimulating-Inventive (SI) V-10
      Systematic-Organized (SO) V-11
    Student Evaluation of Teachers V-12
      Bias V-14
      Validity V-16
      Relations to Teacher Behavior V-20
    How This Class Makes Me Feel V-21
      Consequent Validity V-21
  Effects of Teacher Age and Experience V-23
    Teacher's Effect on Student Time-On-Task V-26
  Consistency and Stability of Teacher Behavior V-27
  Effects of Teacher Behavior on Class V-32
    Teacher and Student Outcomes V-32
  Teacher and Teacher-By-Pupil Effects on Change in Achievement V-33
    Austin I V-33
    Austin II V-35
    Kentucky V-36
  Teacher and Teacher-By-Pupil Effects on Change in Self-Esteem V-41
    Austin I V-41

Teacher and Teacher-By-Pupil Effects on Change in Self-Esteem (Con't) V-41

Austin II V-45

Kentucky V-47

Teacher and Teacher-By-Pupil Effects on Changes in Attitude Toward School V-49

Austin I V-49

Austin II V-52

Kentucky V-56

Teacher and Teacher-By-Pupil Effects on Change in General Attitude V-58

Austin I V-58

Austin II V-60

Kentucky V-60

Teacher and Teacher-By-Pupil Effects on Change in Self-Described General Coping Skill V-61

Austin I V-61

Austin II V-63

Kentucky V-65

Teacher and Teacher-By-Pupil Effects on Change in Peer-Related Academic Coping Skill V-68

Austin II V-68

CHAPTER VI -- Types of Teachers, Types of Pupils, and Their Interacting Effects on Outcomes of Schooling VI-1

Types of Pupils VI-2

Type A. Poor Achievers with Positive Attitudes . . . VI-3

Type B. Poor Achievers with Negative Attitudes . . . VI-3

Type C. High Achievers with Positive Attitudes . . . VI-3

Type D. High Achievers with Negative Attitudes . . . VI-3

Table VI-1: Group Mean Profiles of Four Pupil Types VI-5

Table VI-2: Comparisons of Pupil Type Groups VI-7

Types of Teachers VI-9

Table VI-3: Group Mean Profiles of Three Teacher Types VI-11

Teacher Type/Pupil Type Interactions VI-13

Table VI-4: Distribution of Pupil Types Among Teacher Types VI-15

Effects on Pupil Outcomes VI-17

Table VI-5: Pre-Post Changes of Pupil and Teacher Types VI-19

Table VI-6: Adjusted Post-Test Levels of Pupil and Teacher Types VI-19

Table VI-7: Pupil Type/Teacher Type Interaction on P-H VI-23

Table VI-8: Pupil Type/Teacher Type Interaction on SSI-AS VI-25

Replication with Austin Year II Pupils VI-27

Table VI-9: Group Mean Profiles from Year II Typing of Pupils VI-28

Table VI-10: Comparisons of Pupil Type Groups . . . VI-29

Replication with Austin Year II Teachers VI-31

Table VI-11: Group Mean Profiles from Year II Typing of Teachers VI-31

Table VI-12: Type Assignments in Year I Versus Year II VI-32

Table VI-13: Distribution of Pupil Types Among Teacher Types VI-33

Table VI-14: Pre-Post Changes of Pupil and Teacher Types VI-35

Table VI-15: Adjusted Post-Test Levels of Pupil and Teacher Types VI-37

Replication with Kentucky Sample VI-39

Table VI-16: Group Mean Pupil Profiles from Kentucky Sample VI-39

Table VI-17: Group Mean Profile of Teacher Types . . VI-43

Table VI-18: Distribution of Pupil Types Among Teacher Types VI-43

Table VI-19: Pre-Post Changes of Pupil and Teacher Types VI-45

Table VI-20: Adjusted Post-Test Levels of Pupil and Teacher Types VI-45

CHAPTER VII -- The Effects of Student Characteristics on Learning Outcomes VII-1

Learning Outcome: Academic Achievement as Measured by the Comprehensive Test of Basic Skills (CTBS) and Gates-MacGinitie Reading Test (GMG) VII-1

The Relationship Between Initial Achievement and Other Student Characteristics at the Beginning of the School Year VII-1

The Effects of Student Characteristics on Regressed Change in Achievement VII-3

The Effects of Coping on Regressed Change in Achievement VII-6

The Effects of Attitude Toward School and Live on Regressed Change in Achievement VII-9

The Effects of Self-Esteem on Regressed Change in Achievement VII-10

The Effects of Classroom Behavior on Regressed Gain in Achievement VII-12

Time-On-Task VII-12

Academic Coping VII-13

Social-Emotional Coping VII-13

Summary VII-14

Tables VII - ACH-1 through ACH-3 . . . . VII-19

Graphs VII - ACH-1 through ACH-13 . . . . VII-25

Learning Outcome: Peer-Related Measure of Academic Coping Behavior as Measured by the Behavior Rating Scale -- Peer-Rated (BRS-OR) VII-51

The Relationship Between Initial Peer-Rated Coping Skill and Other Initial Characteristics VII-51

The Effects of Student Characteristics on Regressed Change in Peer-Rated Academic Coping VII-42

The Effects of Achievement on Peer-Rated Academic Coping VII-52

The Effects of Other Coping Measures on Peer-Rated Academic Coping VII-53

The Effects of Self-Esteem and Other Attitude Measures VII-53

The Effects of Time-On-Task VII-54

The Effects of Observed Coping Behavior VII-55

Learning Outcome: Peer-Related Measure of Academic Coping Behavior as Measured by the Behavior Rating Scale -- Peer-Rated (BRS-OR) (Con't) VII-55

Tables P-RA COP-1 through P-RA COP-3 . . . . VII-57

Graphs P-RA COP-1 through P-RA COP-5 . . . . VII-63

Learning Outcome: Self-Rated Academic Coping as Assessed by the Behavior Rating Scale -- Self-Rated (BRS-SR) . VII-73

The Relationship Between Initial Peer-Rated Academic Coping and Other Student Characteristics as the Beginning of the Year VII-73

The Effects of Student Characteristics on Regressed Change in Self-Rated Academic Coping VII-74

The Effects of Achievement on Self-Rated Academic Coping VII-74

The Effects of Other Coping Measures on Self-Rated Academic Coping VII-75

The Effects of Self-Esteem and Other Attitudes on Self-Perceived Academic Coping VII-75

The Effects of Classroom Behavior on Regressed Change on Self-Rated Academic Coping VII-76

The Effects of Time-On-Task VII-76

The Effects of Observed Coping Behavior VII-76

Summary VII-78

Tables A COP: S-R-1 through A COP: S-R-3 . . . . . VII-79

Graphs A COP: S-R-1 through A COP: S-R-2 . . . . . VII-85

Learning Outcome: Self-Rated General Coping Skills -- Student Sentence Completion VII-89

The Relationship Between Initial General Coping: Self-Report and Other Pupil Characteristics at the Beginning of the School Year VII-89

The Effects of Student Characteristics on Regressed Change in General Coping: Self-Report VII-90

The Effects of Achievement on General Coping: Self-Report VII-90

The Effects of Peer-Rated Academic Coping in Regressed Change on Self-Report General Coping VII-91

The Effects of Self-Rated Academic Coping on Self-Perceived General Coping VII-92

Learning Outcome: Self-Rated General Coping Skills -- Student Sentence Completion (Con't) VII-92

The Effects of Attitude Toward School on General Coping: Self-Report VII-92

The Effects of Attitude Toward Life in General on General Coping: Self-Report VII-93

The Effects of Self-Esteem on Regressed Change on General Coping: Self-Report VII-95

The Effects of Classroom Behavior on Self-Reported and General Coping VII-95

The Effects of Time-On-Task (TOT) VII-96

The Effects of Academic and Social-Emotional Coping VII-97

The Effects of COR-Pupil: Students' Observed Orderly Classroom Behavior VII-98

Summary: Replication of Findings VII-98

Tables G COP: S-R-1 through G COP S-R-3 . . . . . . VII-101

Graphs G COP: S-R-1 through G COP S-R-9 . . . . . . VII-107

Learning Outcome: General Attitude Toward Life as Measured by the Student Sentence Completion-Attitude Scale (SSC-A) VII-125

The Relationship Between General Attitude Toward Life and Other Pupil Characteristics at the Beginning of the Year VII-125

The Effects of Student Characteristics in Regressed Change on Attitude: General VII-126

The Effects of Achievement on General Attitude . . . VII-126

The Effects of Academic Coping on Attitude in General VII-126

The Effects of Self-Rated Academic Coping on Regressed Change in General Attitude VII-128

The Effects of Self-Perceived General Coping Skills on Regressed Gain in General Attitude VII-129

The Effects of Students' Attitude Toward School on Regressed Change on Attitude in General VII-129

The Effects of Self-Esteem on Regressed Gain in General Attitude VII-131

- Learning Outcome: General Attitude Toward Life as Measured by the Student Sentence Completion-Attitude Scale (SSC-A) (Con't) VII-131
  - The Effects of Classroom Behavior on Regressed Change in General Attitude VII-132
    - Effects of Time-On-Task VII-132
    - The Effects of Academic Coping VII-133
    - The Effects of Social-Emotional Coping VII-135
    - The Effects of Students' Organized Classroom Behavior VII-136
  - Summary: Replication of Results VII-136
  - Tables VII - GATT-1 through GATT-3 . . . . VII-137
  - Graphs VII - GATT-1 through GATT-22 . . . . VII-143
- Learning Outcome: Self-Esteem as Measured by the Piers-Harris Self-Concept and the Student Self-Description VII-187
  - The Relationship Between Initial Attitude Toward School and Other Student Characteristics at the Beginning of the Year VII-187
  - The Effects of Student Characteristics on Regressed Change in Attitude Toward School VII-188
  - The Effects of Achievement on Attitude: School . . . VII-188
  - The Effects of Coping Skill on Regressed Change in Attitude: School VII-189
    - Self-Rated and Peer-Rated Coping VII-189
    - Self-Rated General Coping VII-190
  - The Effects of Attitude Toward Life and Self-Esteem on Regressed Change in Attitude Toward School . VII-191
  - The Effects of Classroom Behavior on Regressed Change in Attitude Toward School VII-192
    - Effects of Time-On-Task VII-192
    - The Effects of Academic Coping VII-193
    - The Effects of Social-Emotional Coping VII-194
    - Effects of Work-Oriented Behavior: COR-Pupil . VII-196
  - SSI Criterion: Summary of Replications VII-196
  - Tables VII - SA-1 through SA-3 . . . . VII-199
  - Graphs VII - SA-1 through SA-15 . . . . VII-205

Learning Outcome: Self-Esteem as Measured by the Piers-Harris Self-Concept and the Student Self-Discussion VII-235
- The Relationship Between Initial Self-Esteem and Other Student Characteristics at the Student Self-Discussion VII-235
- The Effects of Student Characteristics on Regressed Change in Self-Esteem VII-236
  - The Effects of Achievement on Regressed Change in Self-Esteem VII-236
- The Effects of Peer-Rated Academic Coping VII-238
- The Effects of Self-Rated Academic Coping VII-239
- The Effects of Self-Reported, General Coping Ability on Self-Esteem VII-240
- The Effects of Attitude Toward School on Regressed Change in Self-Esteem VII-241
- The Effects of Attitude in General on Regressed Change in Self-Esteem VII-242
  - The Effects of Time-On-Task on Regressed Change in Self-Esteem VII-242
  - The Effects of Academic Coping Behavior on Regressed Change in Self-Esteem VII-243
- The Effects of Social-Emotional Coping and Class Behavior (COR-Pupil) on Regressed Gain in Self-Esteem VII-244
- Summary: Replication of Results VII-245
- Tables VII - SE-1 through SE-3 . . . . VII-247
- Graphs VII - SE-1 through SE-8 . . . . VII-253

Some Summary Observations VII-269

TABLE OF FIGURES

Volume II

CHAPTER V -- Teachers V-1

Table 1: Correlations Between COR Factor Scores and SET (Post) Scores Within the Same Year V-71

Table 2: Validity Data for How This Class Makes Me Feel (HOWCL): Austin II (Between) V-73

Table 3: Effects of Teacher Behavior and Student Gains on How-This-Class-Makes-Me-Feel Scores V-75

Table 4: Consistency of Teacher Behavior Across Three Dimensions (COR-KU, COR-SO, COR-SI) V-77

Figure 1: ACH (CT) Post vs. ACH (CT) Pre: Austin I . . V-81

Figure 2: ACH (CT) Post.Pre vs BRS-OR: Austin I . . . V-83

Figure 3: ACH (CT) Post.Pre vs SSC-C: Austin I V-85

Figure 4: ACH (CT) Post.Pre vs COR-KU: Austin I . . . V-87

Figure 5: ACH (GMG) Post.Pre vs COR-KU: Austin II . . V-89

Figure 6: ACH (GMG) Post vs ACH (GMG) Pre: Austin II . V-91

Figure 7: ACH (GMG) Post.Pre vs COR-SO: Austin II . . V-93

Figure 8: ACH (GMG) Post.Pre vs BRS-SR: Austin II . . V-95

Figure 9: ACH (GMG) Post.Pre vs HOWCL: Austin II . . . V-97

Figure 10: ACH (GMG) Post.Pre vs HOWCL: Austin II . . . V-99

Figure 11: ACH (CT) Post vs ACH Pre: Kentucky V-101

Figure 12: ACH (CT) Post vs ACH (CT) Pre: Kentucky . . V-103

Figure 13: ACH (CT) Post vs ACH Pre: Kentucky V-105

Figure 14: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-107

Figure 15: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-109

Figure 16: ACH (CT) Post.Pre vs SSCA Pre: Kentucky . . V-111

Figure 17: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-113

Figure 18: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-115

Figure 19: ACH (CT) Post.Pre vs BRS-SR: Kentucky . . . V-117

Figure 20: ACH (CT) Post vs BRS-SR: Kentucky V-119

Figure 21: ACH (CT) Post vs BRS-SR: Kentucky V-121

Figure 22: ACH (CT) Post.Pre vs P-H: Kentucky V-123

Figure 23: ACH (CT) Post.Pre vs P-H: Kentucky V-125

Figure 24: P-H Post vs P-H Pre: Austin I V-127

TABLE OF FIGURES
VOLUME II
Page 2

CHAPTER V -- Teachers (Con't)

Figure 25: P-H Post.Pre vs SSI-Att: Austin I V-129
Figure 26: P-H Post.Pre vs SSI-Att: Austin I V-131
Figure 27: P-H Post.Pre vs SSC-A: Austin I V-133
Figure 28: P-H Post.Pre vs SSI-Att: Austin I V-135
Figure 29: P-H Post.Pre vs SSC-A: Austin I V-137
Figure 30: P-H Post.Pre vs SSC-C: Austin I V-139
Figure 31: P-H Post.Pre vs SSC-C: Austin I V-141
Figure 32: P-H Post.Pre vs SES: Austin I V-143
Figure 33: P-H Post.Pre vs SES: Austin I V-145
Figure 34: P-H Post.Pre vs SSC-A: Austin I V-147
Figure 35: SSD Post vs SSD Pre: Austin II V-149
Figure 36: SSD Reg Chnge vs GMG: Austin II V-151
Figure 37: SSD Reg Chnge vs SET: Austin II V-153
Figure 38: SSD Reg Chnge vs SSC-C: Austin II V-155
Figure 39: SSD Reg Chnge vs SSC-C: Austin II V-157
Figure 40: SSD Reg Chnge vs SSC-C: Austin II V-159
Figure 41: SSD Reg Chnge vs SSC-C: Austin II V-161
Figure 42: SSD Reg Chnge vs SES: Austin II V-163
Figure 43: SSD Reg Chnge vs SES: Austin II V-165
Figure 44: SSD Reg Chnge vs BRS-SR: Austin II V-167
Figure 45: P-H Post vs P-H Pre: Kentucky V-169
Figure 46: P-H Post.Pre vs BRS-SR: Kentucky V-171
Figure 47: P-H Post.Pre vs SSI: Kentucky V-173
Figure 48: P-H Post vs SSI: Kentucky V-175
Figure 49: P-H Post vs SSI: Kentucky V-177
Figure 50: P-H Post vs SSI: Kentucky V-179
Figure 51: SSI-Att Post.Pre vs COR-SI: Austin I V-181
Figure 52: SSI-Att Post.Pre vs P-H: Austin I V-183
Figure 53: SSI-Att Post.Pre vs P-H: Austin I V-185
Figure 54: SSI-Att Post.Pre vs P-H: Austin I V-187
Figure 55: SSI-Att Post.Pre vs SES: Austin I V-189
Figure 56: SSI-Att Post.Pre vs P-H: Austin I V-191

TABLE OF FIGURES
VOLUME II
Page 3

CHAPTER V -- Teachers (Con't)

Figure 57: SSI-Att Post.Pre vs SSC-A: Austin I V-193
Figure 58: SSI-Att Post.Pre vs SSC-C: Austin I V-195
Figure 59: SSI-Att Post.Pre vs SES: Austin I V-197
Figure 60: SSI-Att Post.Pre vs SSC-C: Austin II V-199
Figure 61: SSI-Att Post.Pre vs SET: Austin II V-201
Figure 62: SSI-Att Post.Pre vs SET: Austin II V-203
Figure 63: SSI-Att Post.Pre vs SSC-Att: Austin II . . . V-205
Figure 64: SSI-Att Post.Pre vs SSC-A: Austin II V-207
Figure 65: SSI-Att Post.Pre vs BRS-SR: Austin II . . . V-209
Figure 66: SSI-Att Post.Pre vs SET: Austin II V-211
Figure 67: SSI-Att Post vs SSI-Att Pre: Austin II . . . V-213
Figure 68: SSI-Att Post.Pre vs SSC-A: Austin II V-215
Figure 69: SSI-Att Post.Pre vs HOWCL: Austin II V-217
Figure 70: SSI-Att Post vs SSI-Att Pre: Austin II . . . V-219
Figure 71: SSI-Att Post.Pre vs SSC-A: Austin II V-221
Figure 72: SSI-Att Post.Pre vs SSC-C: Austin II V-223
Figure 73: SSI-Att Post.Pre vs BRS-OR: Austin II . . . V-225
Figure 74: SSI-Att Post vs SSD: Austin II V-227
Figure 75: SSI-Att Post.Pre vs HOWCL: Austin II V-229
Figure 76: SSI-Att Post.Pre vs SES: Austin II V-231
Figure 77: SSI-Att Post.Pre vs BRS-OR: Kentucky V-233
Figure 78: SSI-Att Post.Pre vs SET: Kentucky V-235
Figure 79: SSI-Att Post vs SSI-Att Pre: Kentucky . . . V-237
Figure 80: SSI-Att Post.Pre vs SSC-C: Kentucky V-239
Figure 81: SSI-Att Post.Pre vs SSC-Att: Kentucky . . . V-241
Figure 82: SSI-Att Post.Pre vs COR-SI: Austin I V-243
Figure 83: SSC-A Post vs SSC-A Pre: Asutin I V-245
Figure 84: SSC-A Post vs SSC-Att Pre: Austin I V-247
Figure 85: SSC-Att Post vs SSC-Att Pre: Austin I . . . V-249
Figure 86: SSC-A Post.Pre vs SES: Austin I V-251
Figure 87: SSC-A Post.Pre vs SES: Austin I V-253
Figure 88: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-255

CHAPTER V -- Teachers (Con't)

Figure 89: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-257
Figure 90: SSC-Att Post.Pre vs ACH (CT): Austin I . . . V-259
Figure 91: SSC-Att Post.Pre vs P-H: Austin I V-261
Figure 92: SSC-Att Post.Pre vs SES: Austin I V-263
Figure 93: SSC-Att Post.Pre vs SES: Austin I V-265
Figure 94: SSC-Att Post.Pre vs P-H: Austin I V-267
Figure 95: SSC-Att Post vs SSC-Att Pre: Kentucky . . . V-269
Figure 96: SSC-Att Post vs SSC-Att Pre: Kentucky . . . V-271
Figure 97: SSC-Att Post.Pre vs P-H: Kentucky V-273
Figure 98: SSC-Att Post.Pre vs SSI-Att: Kentucky . . . V-275
Figure 99: SSC-C Post.Pre vs ACH (CT): Austin I V-277
Figure 100: SSC-C Post.Pre vs SES: Austin I V-279
Figure 101: SSC-C Post.Pre vs ACH (CT): Austin I V-281
Figure 102: SSC-C Post.Pre vs SSC-Att: Austin II V-283
Figure 103: SSC-C Post.Pre vs SES: Austin II V-285
Figure 104: SSC-C Post.Pre vs SES: Austin II V-287
Figure 105: SSC-C Post.Pre vs HOWCL: Austin II V-289
Figure 106: SSC-C Post.Pre vs SET: Kentucky V-291
Figure 107: SSC-C Post.Pre vs ACH: Kentucky V-293
Figure 108: SSC-C Post.Pre vs ACH: Kentucky V-295
Figure 109: SSC-C Post.Pre vs ACH: Kentucky V-297
Figure 110: SSC-C Post vs P-H: Kentucky V-299
Figure 111: SSC-C Post vs SSC-C Pre: Kentucky V-301
Figure 112: SSC-C Post vs BRS-SR: Kentucky V-303
Figure 113: SSC-C Post vs BRS-SR: Kentucky V-305
Figure 114: SSC-C Post vs BRS-SR: Kentucky V-307
Figure 115: BRS-OR Reg Chnge vs SES: Austin II V-309
Figure 116: BRS-OR Reg Chnge vs GMG: Austin II V-311
Figure 117: BRS-OR Reg Chnge vs SES: Austin II V-313

CHAPTER VI -- Types of Teachers, Types of Pupils, and Their Interacting Effects on Outcomes of Schooling VI-1

Table 1: Group Mean Profiles of Four Pupil Types . . . VI-5
Table 2: Comparisons of Pupil Type Groups VI-7
Table 3: Group Mean Profiles of Three Teacher Types . VI-11
Table 4: Distribution of Pupil Types Among Teacher Types VI-15
Table 5: Pre-Post Changes of Pupil and Teacher Types . VI-19
Table 6: Adjusted Post-Test Levels of Pupil and Teacher Types VI-19
Table 7: Pupil Type/Teacher Type Interaction on P-H . VI-23
Table 8: Pupil Type/Teacher Type Interaction on SSI-AS VI-25
Table 9: Group Mean Profiles from Year II Typing on Pupils VI-28
Table 10: Comparisons of Pupil Type Groups VI-29
Table 11: Group Mean Profiles from Year II Typing of Teachers VI-31
Table 12: Type Assignments in Year I and Year II . . . VI-32
Table 13: Distribution of Pupil Types Among Teacher Types VI-33
Table 14: Pre-Post Changes of Pupil and Teacher Types . VI-35
Table 15: Adjusted Post-Test Levels of Pupil and Teacher Types VI-37
Table 16: Group Mean Pupil Profiles from Kentucky Sample VI-39
Table 17: Group Mean Profile of Teacher Types (Kentucky) VI-43
Table 18: Distribution of Pupil Types Among Teacher Types VI-43
Table 19: Pre-Post Changes of Pupil and Teacher Types . VI-45
Table 20: Adjusted Post-Test Levels of Pupil and Teacher Types VI-45
Figure 1: Score Profiles of the Four Pupil Types (Austin I) VI-49
Figure 2: Score Profiles of the Three Teacher Types (Austin I) VI-51
Figure 3: Score Profiles of the Four Pupil Types (Austin II) VI-53
Figure 4: Score Profiles of the Three Teacher Types (Austin II) VI-55

TABLE OF FIGURES
VOLUME II
Page 6

CHAPTER VII -- The Effects of Student Characteristics on Learning Outcomes VII-1

Figure 5: Score Profiles of the Four Pupil Types (Kentucky) VI-57

Figure 6: Score Profiles of the Three Teacher Types (Kentucky) VI-59

Table ACH1: The Relationship Between Initial Achievement and Pupil Characteristics VII-19

Table ACH2: The Effects of Student Characteristics on Regressed Change in Achievement VII-21

Table ACH3: The Effects of Classroom Behavior on Regressed Change on Achievement VII-23

Graph ACH1: ACH (CT) Post.Pre vs BRS-OR: Austin I . . VII-25

Graph ACH2: ACH (CT) Post.Pre vs SSC-C: Austin I . . . VII-27

Graph ACH3: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-29

Graph ACH4: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-31

Graph ACH5: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-33

Graph ACH6: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-35

Graph ACH7: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-37

Graph ACH8: ACH (CT) Post vs ACH (CT) Pre: Austin I . VII-39

Graph ACH9: ACH (GMG) Post vs ACH (GMG) Pre: Austin II VII-41

Graph ACH10: ACH (CT) Post vs ACH(CT) Pre: Austin I . . VII-43

Graph ACH11: ACH (CT) Post.Pre vs Acad Cop: Austin I . VII-45

Graph ACH12: ACH (GMG) Post.Pre vs Soc-Emo-Cop: Austin II VII-47

Graph ACH13: ACH (GMG) Post vs ACH (GMG) Pre: Austin II VII-49

Table P-RA COP1: The Relationship Between Initial Academic Coping: Peer Ratings and Pupil Characteristics VII-57

Table P-RA COP2: The Effects of Student Characteristics on Regressed Change in Academic Coping: Peer-Rated VII-59

Table P-RA COP3: The Effects of Classroom Behavior on Regressed Change on Academic Coping: Peer-Rated VII-61

Graph P-RA COP1: BRS-OR Post vs BRS-OR Pre: Austin II . VII-63

Graph P-RA COP2: BRS-OR Reg Chnge vs BRS-SR Pre: Austin II VII-65

CHAPTER VII -- Students (Con't)

Graph P-RA COP3: BRS-OR Post vs BRS-OR Pre: Austin II . VII-67

Graph P-RA COP4: BRS-OR Post vs BRS-OR Pre: Austin II . VII-69

Graph P-RA COP5: BRS-OR Post vs BRS-OR Pre: Austin II . VII-71

Table A COP: S-R1: The Relationship Between Initial Academic Coping: Self-Rating and Pupil Characteristics VII-79

Table A COP: S-R2: The Effects of Student Characteristics on Regressed Change in Academic Coping: Self-Rated VII-81

Table A COP: S-R3: The Effects of Classroom Behavior on Regressed Change on Academic Coping: Self-Rated VII-83

Graph A COP: BRS-SR Post vs BRS-OR Pre: Austin II . . . VII-85

Graph A COP: BRS-SR Post vs BRS-SR Pre: Austin II . . . VII-87

Table G COP: S-R1: The Relationship Between Initial General Coping: Self-Report and Pupil Characteristics VII-101

Table G COP: S-R2: The Effects of Student Characteristics on Regressed Change on General Coping: Self-Report VII-103

Table G COP: S-R3: The Effects of Classroom Behavior on Regressed Change on General Coping: Self-Report VII-105

Graph G COP: S-R1: SSC-C Post vs SSC-C Pre: Austin I . VII-107

Graph G COP: S-R2: SSC-C Post vs SSC-C Pre: Austin I . VII-109

Graph G COP: S-R3: SSC-C Post.Pre vs SSI-Att: Kentucky VII-111

Graph G COP: S-R4: SSC-C Post vs SSC-C Pre: Kentucky . VII-113

Graph G COP: S-R5: SSC-C Post vs SSC-C Pre: Austin I . VII-115

Graph G COP: S-R6: SSC-C Post.Pre vs P-H: Austin I . . VII-117

Graph G COP: S-R7: SSC-C Post.Pre vs TOT: Austin I . . VII-119

Graph G COP: S-R8: SSC-C Post vs SSC-C Pre: Kentucky . VII-121

Graph G COP: S-R9: SSC-C Post vs SSC-C Pre: Austin II . VII-123

Table GATT1: The Relationship Between Initial Attitude: General and Pupil Characteristics VII-137

Table GATT2: The Effects of Student Characteristics on Regressed Change on Attitude: General . . VII-139

CHAPTER VII -- Students (Con't)

Table GATT3: The Effects of Classroom Behavior on Regressed Change on Attitude: General . . VII-141
Graph GATT1: SSC-A Post vs SSC-A Pre: Kentucky VII-143
Graph GATT2: SSC-A Post vs SSC-A Pre: Kentucky VII-145
Graph GATT3: SSC-A Post vs SSC-A Pre: Austin II VII-147
Graph GATT4: SSC-A Post vs SSC-A Pre: Kentucky VII-149
Graph GATT5: SSC-A Post.Pre vs BRS-SR: Kentucky VII-151
Graph GATT6: SSC-A Post.Pre vs BRS-SR: Austin II . . . VII-153
Graph GATT7: SSC-A Post vs SSC-A Pre: Kentucky VII-155
Graph GATT8: SSC-A Post vs SSC-A Pre: Kentucky VII-157
Graph GATT9: SSC-A Post.Pre vs SSI-Att: Kentucky . . . VII-159
Graph GATT10: SSC-A Post vs SSC-A Pre: Austin I VII-161
Graph GATT11: SSC-A Post vs SSC-A Pre: Austin I VII-163
Graph GATT12: SSC-A Post vs SSC-A Pre: Austin I VII-165
Graph GATT13: SSC-A Post vs SSC-A Pre: Austin II VII-167
Graph GATT14: SSC-A Post.Pre vs P-H: Austin I VII-169
Graph GATT15: SSC-A Post.Pre vs P-H: Kentucky VII-171
Graph GATT16: SSC-A Post.Pre vs TOT: Kentucky VII-173
Graph GATT17: SSC-A Post vs SSC-A Pre: Kentucky VII-175
Graph GATT18: SSC-A Post vs SSC-A Pre: Kentucky VII-177
Graph GATT19: SSC-A Post vs SSC-A Pre: Kentucky VII-179
Graph GATT20: SSC-A Post vs SSC-A Pre: Austin II VII-181
Graph GATT21: SSC-A Post.Pre vs Soc-Emo-Cop: Kentucky . VII-183
Graph GATT22: SSC-A Post vs SSC-A Pre: Austin II VII-185
Table SA1: The Relationship Between Initial Attitude: School and Pupil Characteristics VII-199
Table SA2: The Effects of Student Characteristics on Regressed Change on Attitude: School . . . VII-201
Table SA3: The Effects of Classroom Behavior on Regressed Change on Attitude: School . . . VII-203
Graph SA1: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-205
Graph SA2: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-207
Graph SA3: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-209

CHAPTER VII -- Students (Con't)

Graph SA4: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-211
Graph SA5: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-213
Graph SA6: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-215
Graph SA7: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-217
Graph SA8: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-219
Graph SA9: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-221
Graph SA10: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-223
Graph SA11: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-225
Graph SA12: SSI-Att Post vs SSI-Att Pre: Austin I . . VII-227
Graph SA13: SSI-Att Post vs SSI-Att Pre: Austin II . . VII-229
Graph SA14: SSI-Att Post vs SSI-Att Pre: Kentucky . . VII-231
Graph SA15: SSI-Att Post.Pre vs Soc-Emo-Cop: Kentucky VII-233
Table SE1: The Relationship Between Initial Self-Esteem and Pupil Characteristics . . VII-247
Table SE2: The Effects of Student Characteristics on Regressed Change in Self-Esteem VII-249
Table SE3: The Effects of Classroom Behavior on Self-Esteem VII-251
Graph SE1: SSD Post vs SSD Pre: Austin II VII-253
Graph SE2: P-H Post vs P-H Pre: Austin I VII-255
Graph SE3: P-H Post vs P-H Pre: Kentucky VII-257
Graph SE4: SSD Post vs SSD Pre: Austin II VII-259
Graph SE5: P-H Post vs P-H Pre: Austin I VII-261
Graph SE6: P-H Post vs P-H Pre: Kentucky VII-263
Graph SE7: P-H Post vs P-H Pre: Austin I VII-265
Graph SE8: P-H Reg Chnge vs Acad Cop: Kentucky . . . VII-267

CHAPTER V

TEACHERS

In an investigation of teacher-learner interactions the teachers are a crucial part of the investigation. Their selection and cooperation are extremely important to the success of such a study. In fact, the teachers control a researcher's access to the classroom and influence the students' attitudes toward the researchers. Furthermore, teachers control how actively they will cooperate with the research study.

This study was fortunate in having 53 teachers in Austin Year I, 43 teachers in Austin Year II, and 27 teachers in Kentucky volunteer to participate in this study. In fact, 33 teachers volunteered to participate two years in a row, in Austin. They volunteered knowing the project would take a considerable amount of their time and effort above normal teaching duty demands. They volunteered despite some of their peers' open disdain for research studies and refusal to participate. Furthermore, for their efforts, they only received in return (1) feedback of their students' achievement at the beginning of the year, (2) feedback on students' evaluations of them, and (3) a $50 honorarium just before Christmas. The teachers' participation clearly reflects dedicated, professional concern for improving their craft.

Research Design

From the researchers' point of view, a design was needed that would show the teacher's role in influencing the student's learning process. A presage-process-product model seemed to be the most appropriate. In this way, the teachers' characteristics could be described at the beginning of the year; their classroom behavior could be observed during the year; and the results of their efforts with students could be measured at the end of the year. Some implications about causality could be drawn from such sequential data, even though causality could not be rigorously proved.

The study was designed to repeat this presage-process-product model in two consecutive years, using the same teachers as much as possible. The stability of teacher behavior could thus be observed and findings in Year I could be checked against Year II. The sample from a geographically and culturally different region, Kentucky, further diversified the samples and allowed another test of the generalizability of the findings.

Given the volunteer process of obtaining teacher participants, the researchers were concerned about getting a sample of teachers characteristic of teachers in the United States, for generalizability purposes. As the demographic data in this chapter will show, these teachers who volunteered turned out to be typical teachers in terms of age, experience, and educational level. In Austin, these sixth grade teachers' classrooms were comparable to typical classrooms in terms of ethnic, socio-economic, and achievement level balance. In Kentucky, the teachers' classes differed from the Austin samples only in ethnic balance (only two minority children were in the Kentucky sample.)

Research Measures

The choice of variables to measure, the means of observing the variables, and the measures of the variables, is never an easy or completely satisfying task. In this study, variables and methods of observing were needed which would fit the presage-process-product design.

Presage variables were chosen which described the teachers' demographic and personality characteristics, prior to the year of observation. A teacher biographical form provided data on age, education level, years of experience, etc. The Adjective Self-Description measure was used to assess self-reported personality traits.

To capture the teacher's style of conducting classes, observers were trained to describe and rate many aspects of the teacher's behavior. Of all the observation rating systems surveyed, Ryan's (1960) system seemed to be the most appropriate, psychometrically and descriptively. The three factors from Ryan's original studies were replicated in this study, without the observers knowing how their ratings were "supposed to" factor out. The staff also constructed a system for counting numerous, specific kinds of teacher and pupil behavior. An interview system was also designed, to get the teacher's perspective on his or her interactions with students. Estimates were made of how much these measuring attempts were affecting the "reality" being observed, as the teachers saw it. Finally, the Student Evaluation of Teachers measure was used to get an idea of how effective the teacher was, as students saw it. In the second year of the study the How-This-Class-Makes-Me-Feel measure was created, to assess the specific impact of a particular teacher on his students. Thus, the teacher's style of classroom instruction was observed by raters, interviewers, and students.

Ultimately, the product of the teaching craft is change in student knowledge, behavior, and affect. In this study, measures of the students' evaluation of the teacher, of observers' ratings of classroom behavior, and of the students' evaluation of the class' impact are there, together with change on the other student outcomes, to assess the effects of teacher behavior. The teachers' effects on all the student variables, and on change over the year on these variables, are described in this chapter. Details of the teacher measures, and their psychometric properties, can be found in Chapter III. Chapter VI describes a cluster analysis of the teacher measures which divided teachers into three groups, differing by level of effectiveness. Those chapters amplify the information provided here.

Presage Measures

Demographic Data on Teachers

In all, 90 different teachers participated. A total of 53 teachers participated in Austin Year I and 43 in Austin Year II (33 of these teachers participated in both Austin Year I and Austin Year II). Twenty-seven teachers participated in Kentucky.

At each of the sites of this study, the female teachers outnumbered the male teachers in approximately a five-to-one ratio. Furthermore, there were few ethnic minority teachers in this sample. At the Kentucky site, no minority teachers participated, and only one or two minority students. In Austin, six black teachers participated in Year I and five black teachers participated in Year II. One Hispanic teacher participated in each year at the Austin site.

The mean age at all three sites was 34 years. For Austin Years I and II, the standard deviation was about 11 years, with a range in age from 21 to 60. In the Kentucky sample, the range in age was from 22 to 47. The Austin sites had many young teachers, in their 20's: 27 in Year I and 22 in Year II.

The Austin Year II and Kentucky samples of teachers had an equal percentage of teachers with a B.A degree (70%) and M.A. degree (30%). The Austin Year I sample was not much different, 81% having a B.A. and 19% having an M.A. degree. These three samples of teachers had very similar levels of formal education and about the same amount of teaching experience. Those in the Austin Year I and Kentucky samples had an average of nine years of teaching experience. Years of experience for Austin Year I teachers ranged from one to 39 years, while the Kentucky teachers had a range from two to 27 years of experience. Austin Year I and II teachers had the same range of experience, but Year II teachers had an average of 11 years of experience, two years more than the Year I sample.

In all, there were more similarities than differences among these samples. This was to be expected in the two Austin samples, where 33 teachers were common (i.e., the same people) in Years I and II. They constituted 62% of the first year group and 77% of the second year sample. The Kentucky sample of teachers was similar to the Austin groups. The Kentucky sample was more homogenous in ethnic background, age, sex, and years of teaching experience than the Austin sample. However, the sex ratio, mean age of the groups, percentage and types of degrees, and mean years of teaching were very similar to the Austin sample. To this extent, the findings that involve teacher characteristics may be comparable across these two geographically and culturally diverse sites.

Teacher Personality Traits

The Adjective Self-Description was used as a self-report measure of seven personal traits. It is a reliable instrument (see Chapter III). Its validity was tested in several ways in this study, summarized in Propositions 12 - 16. When the ASD scores were compared with the observer's ratings of teaching behaviors, there was substantial correspondence in the Austin I sample. Teachers rated high on kindly-understanding, for example, described themselves on the ASD as positive in attitude, relatively pleasant (neither remarkably pleasant nor abrasive), extroverted, and moderately, not extremely, attractive. Those rated high for stimulating - inventiveness scored high on attitude, high on individualism, and just average (not high) on attractiveness on the ASD. In Austin II and Kentucky, however, there were no significant relationships between ASD scores and observer ratings. In two of the three samples, self-ratings of personal traits did not show any validity when compared with observer ratings of different but conceptually relevant aspects of behavior. (See Table P-12 in Chapter VIII.)

Moreover, when compared with the factor describing pupils' class behavior, (Table P-13, Chapter VIII) and with student attendance (Table P-14), no more than a chance number of "significant" effects was found. When cast against student Time-on-Task, a similar lack of predictive validity was found.

In the one sample analyzed in this way, Austin I, teacher traits did show a significant number of significant effects on student gains. Student achievement gain was positively associated with ASD introversion and with a moderate, not high, self-rating on attractiveness. (A very high attractiveness score may represent a narcissistic quality that precludes wholehearted attention to students' needs.) Student gains on self-esteem were associated with teachers' positive attitude, efficiency, and a middle stance between introversion and extroversion. Students' gains in attitude toward school were associated with teachers' positive attitude; so was student gain in general attitude; and this gain in attitude was also associated with teacher self-rated efficiency. Student gain in self-reported coping skill was associated with teachers' medium scores on attractiveness.

It is not surprising that self-descriptions by teachers should have considerably less than perfect validity. Social desirability effects, alone, are bound to limit validity; and any inaccuracy in self-perception further reduces it. Perhaps the most reasonable conclusion for the findings is that the fairly substantial connections between teacher self-descriptions, observer ratings, and student gains in Austin I indicate a genuine relationship between teacher traits and student outcomes; but the lack of relationship elsewhere makes it clear that self-descriptions, as done with the ASD, cannot always be depended upon to give an accurate portrayal of actual behavior and attitudes.

Teacher Process Measures

Classroom Ratings of Teachers

Chapter III, Instruments, described how all teachers were observed by a set of trained raters who were looking at 20 specific aspects of the classroom behavior of the teachers, in their interaction with the children (Ryan's Classroom Observation Record). Using factor analysis, three dimensions of teacher behaviors were found: Kindly-understanding (KU), Systematic-organized (SO), and Stimulating-inventive (SI). These factors almost exactly reproduced the factors Ryan obtained in his earlier study (Ryan, 1960). Any one teacher could have been rated high, average, or low, in any combination, on these dimensions of behavior.

Before describing the results of the observations of teachers, a detailed description of the factors describing teacher behavior will be provided. Throughout this manuscript, the shorthand names of these factors (KU, SO, SI) will be used.

Of the 26 items on the Classroom Observation Record (described in Chapter III), 20 items described teacher behavior. The other six made up a Pupil Behavior factor. Each of these items had a set of definitions and examples, which each observer used in making ratings.

The teacher factors were identified by three sets of rating scales, in the following way:

Kindly-Understanding:

1. Fair - Partial
2. Democratic - Autocratic
3. Responsive - Aloof
4. Understanding - Restricted
5. Kindly - Harsh
6. Clear - Unclear
7. Adaptable - Inflexible
8. Optimistic - Pessimistic
9. Student-Centered - Self-Centered

Stimulating-Inventive:

1. Stimulating - Dull
2. Original - Stereotyped
3. High Cognitive Lecture - Low Cognitive Lecture
4. High Cognitive Questions - Low Cognitive Questions
5. Broad - Narrow

Systematic-Organized:

1. Alert - Apathetic
2. Responsible - Evading
3. Steady - Erratic
4. Poised - Excitable
5. Confident - Uncertain
6. Systematic - Disorganized

Kindly-Understanding (KU). The nine items that compose the KU factor cover three dimensions of teacher behavior. One dimension is the teacher's use of power: autocratic and partial versus democratic and fair. Another dimension concerns the teacher's attitude: optimistic versus pessimistic. The third dimension concerns the teacher's orientation toward the students: self-centered, aloof, restricted, inflexible, harsh, with unclear speech versus student-centered, responsive, understanding, adaptable, kindly, with clear, pleasantly toned speech.

The following is an example of teacher behavior which was rated as highly kindly-understanding:

> One of the most striking impressions of this teacher is the lack of physical distance between her and the children in the class. She always seemed to be surrounded by kids and working with them. For instance, I walked into the room a couple of times while the class was watching a filmstrip, and the teacher was always sitting among the students on a low stool. Whenever I saw her working with a group, she would sit down at the desks with them. If she was walking through the hall with her class, she was walking with two or three kids at a time, talking instead of walking ahead of the class. My overall impression is of an energetic, involved teacher who works hard to develop personal relationships with her class.

Sometimes the label "Kindly-understanding" conveys to some people the picture of a teacher who is so student-oriented that the teacher cannot keep order or provide instructions. That was not the case with most of these teachers, who exhibited large amounts of kindly-understanding behavior. They tended to maintain classroom order and to increase student efforts to learn. In fact, most of the teachers with the highest degree of kindly-understanding behavior were also rated high on systematic-organized and stimulating-inventive behaviors. (The factors correlated as follows: KU x SO .82; KU x SI .88; SO x SI .79.)

Stimulating-Inventive (SI). This factor described the teacher's style of presentation of ideas and materials. Two main dimensions are apparent: (1) the teacher's intellectual creativity, flexibility, and liveliness, and (2) the complexity of thought elicited from students. The first dimension is conveyed by stimulating and original *versus* dull and stereotyped teaching methods. When original ideas and teaching aids are utilized, the very fact that something new and unusual is happening creates a stimulating atmosphere for the teacher and the students. The second dimension concerns what the teacher expects from the children: (1) presenting complex ideas which require students to synthesize facts and ideas in order to answer questions, (2) providing a critical, inquiring approach to the subject matter, rather than merely presenting specific facts and asking questions that require little more than rote memory.

An example of stimulating-inventive (SI) behavior follows:

> In all three periods that we observed, the structure of the class varied from lecture, to group work, to individual work on research papers; but, in each case, the structure was set by the teacher to accomplish a goal that she had earlier selected. She always defined the limits of the situation. Within those limits, the students were free to work in the way

> they wanted. For instance, in one class the teacher made a brief introduction of the subject (different types of authority figures), then divided the class into groups and asked them to discuss the authority figures who appeared in Swiss Family Robinson and Gilligan's Island. Some of the groups chose not to discuss the question together, but to let each student write about the authority figures the teacher mentioned. The teacher let the students work in whichever way they felt most comfortable. I never saw this class doing straight textbook work. They always were using some different material, method, or approach. Once I saw the class preparing a multi-media presentation on the Urban Environment. Another time I saw the teacher cooking piroshki for the class during a unit on Russia. I would rate her cognitive level above average, not only for the material she used, but because her primary goal in discussion was to turn the kids away from pat answers and to get them to see the complexities of questions and issues.

Systematic-Organized (SO). Some of the scales in this factor described the manner in which the teacher structured and managed the classroom: systematic and responsible *versus* disorganized and evading. Some of the other scales described the teacher's manner in providing the structure: alert, steady, poised, and self-confident *versus* apathetic, erratic, excitable, and uncertain. Obviously, these descriptions represent the extremes. Much of teacher behavior was characterized by a mixture of these qualities, in intermediate degrees.

An example of highly systematic-organized behavior follows:

> The atmosphere in this class can be called formal in that there were definite rules of behavior expected on the part of the students toward the teacher and toward each other. However, more than in any other class I worked with, it was apparent that the students understood that these rules were a matter of respect for the teacher, for other students, and for themselves. Consequently, the atmosphere in the classroom was always comfortable and easy. A definite part of this atmosphere was the kind of control the teacher used. She didn't call lots of attention to people who were creating distractions, but she was alert to potentially disturbing situations and squelched them almost immediately. While she was talking, one boy was tapping his ruler. She quietly took the ruler without stopping her lecture. Another time, a boy was tipping his chair, seeing if it would fall over. She quietly told him to go to the "Quiet corner". At still another time, a boy was wandering around the room. She said, "You know where you're supposed to be",

> and he quickly returned to his seat. I felt that most of the time she handled her control problems by reminding the kids of what was expected of them. I never heard her shout or threaten anyone.

The title of this factor scale, systematic-organized, sometimes conveys the image of a strictly structured classroom with a dictator in charge. As seen in the example above, that was not usually the case. Control in such classrooms was most often maintained in a quiet, gentle manner, so that students did not feel oppressed.

Some teachers were high on all factors, while others were rated medium or low on one or more of these factors. Each individual profile reliably described the pattern of that teacher's typical behavior. (Table V-4.)

Student Evaluation of Teachers

Another piece of data in this study was the information on how the students evaluated the teachers. The measure, Student Evaluation of Teaching, was designed to assess five dimensions of teacher behavior, which had been identified earlier in a longer measure (Veldman and Peck, 1969). After the data were collected in this study, a factor analysis of the much-reduced set of items indicated one general factor which measures teaching effectiveness, as seen by the students. Class means on this measure represent the consensus judgment about the teacher by all the students in the class. This class mean score can be used to describe teacher behavior, rather than the view of just one or another student. Therefore, the class mean score was chosen as the level of analysis to use in this study.

During the first year of this study, the Student Evaluation of Teaching (SET) had eight items:

This teacher:
F f t T is always friendly toward students.
F f t T knows a lot about the subject.
F f t T is never dull or boring.
F f t T asks for students' opinions before making decisions.
F f t T is usually cheerful and optimistic.
F f t T is not confused by unexpected questions.
F f t T makes learning more like fun than work.
F f t T often gives students a choice in assignments.

The scale was from one (negative) to four (positive). The internal consistency reliability (coefficient alpha) of the Austin first year sample was .80 (post-test, N=1297) for the total scale. The second year, this measure was reduced to six items (see Chapter III, Instruments). The scale was changed to range from one (negative) to three (positive). The post-test of Austin Year I correlated .67 with the common items in the post-test Austin Year II, on common teachers.

The SET measure appears to be a stable and valid reflection of student reactions toward teachers. Student judgment on this measure appears to be influenced by student attitudes and by teacher behavior that would logically seem to affect a student's evaluation. Students were not biased in evaluating their teacher by their own ethnicity, sex, socio-economic status, or academic achievement level. Overall, the SET measure appears to be a fairly stable teacher measure which is easily obtained, and which appears to be substantially related, on the teacher side, to actual teacher behaviors, and, on the student side, to affective changes in the student. In the next few paragraphs, the data will be presented that support these statements about this measure. Bias indicators, validity indicators, and relations to teacher behavior will be discussed in that order.

Bias. A study of sources of bias was conducted using a sample of 33 teachers who were in both the Austin Year I and Austin Year II sample. The possible sources of bias which were investigated included student demographic data (socio-economic status and ethnicity), ability (achievement), and motivation (attitudes toward school). This special study used individual students' evaluation of the teachers rather than the class means. (Peck, Fox and Blattstein, 1978)

In this special study, the results were as follows:

SET-post correlated .67 and .57 with SSI-post, in Years I and II respectively. SET-post and How-This-Class-Makes-Me-Feel correlated .49 in Year II. These similar but not identical attitude measures showed substantially the amount of relationship to be expected if the SET were a valid estimate of teacher impact on the students.

There were no ethnic or SES effects on SET-pre or on regressed change in SET. Further, SET-pre was not affected by student achievement level (or by students' peer-rated academic coping skills). The students were not subjectively biased by any one of these factors in their own background or performance, when they evaluated their teachers.

SET-post (class mean) correlated with the observers' ratings on COR-KU, COR-SO, and COR-SI, .68, .54, and .47 in Year I; .54, .45, and .38 in Year II. The students and the adult observers agreed to a considerable degree in describing the teachers, in both years. Taken with the evidence of lack of bias, this suggests that the students are giving a reasonably valid picture of teacher behavior and its effects on them. This is further supported by the finding that the different classes in two successive years agreed .68 in rating the same set of 33 teachers. (See TAble V-1.)

SET was influenced, as it logically should be, both by teacher personality characteristics and by teacher classroom behavior. Six of nine personality self-report scales showed effects on regressed change on SET, (p .05), in Year I; three of nine, in Year II. The classroom behavior measures, as would be expected, showed stronger, positive effects on SET-change. The percentages of regressed change in SET explained in Year I were COR-KU 5.1%, COR-SO 3.1%, COR-SI 3.7%. In Year II, the figures were COR-KU 1.3%, COR-SO .8%, COR-SI 2.4%. All of these, except COR-SO in Year II, fell below the p .01 level. Both teacher self-reports and observer ratings tended to confirm the validity of the students' assessments.

The SET-pre individual score (not the class means) did influence student regressed change on the several cognitive and non-cognitive outcome measures. SET-pre made a significant contribution (p .01, 1.0% variance) to positive change in attitude toward school (SSI), general attitude toward life (SSC-A), coping skills (SSC-C), and self-esteem (P-H). It did not affect achievement change; but, for reasons discussed elsewhere, standardized achievement tests, by their design, appear to be extremely ill-suited to detect teacher influence.

Each of the kinds of positive validity evidence found in the 1974-1975 sample were again found, independently, in the 1975-1976 sample.

Overall, this study indicates that the students were not biased by their socio-economic level, ethnicity (Anglo, Black, or Chicano), achievement levels, or attitudes toward school. These sixth grade students were unprejudiced in their appraisals. The students, as a whole, tended to be quite objective and fair-minded in making realistic judgments of the teacher behavior they observed. The results of this small study also indicate that the Student Evaluation of Teaching measure can be taken seriously as a good estimate of what teachers are really like.

Validity. Looking first at student measure correlations, the School Sentiment Index (SSI) was closely correlated with the students' evaluation of the teacher. Significant correlations occurred at the p .01 level on pre- and post-test for all three samples, which is also across years in Austin. Since the SSI is intended to measure students' attitude about school, it is understandable that a student's sentiments about school are highly connected to his/her evaluation of the teacher at school. The peer evaluations (BRS-OR) at the first of the school year also correlated at the .05 level with the classes' evaluation of the teacher in all three samples. In Austin Year II, the only time the peer evaluation was also used as a post-test, a .05 level correlation also occurred between peer evaluations and evaluations of teachers. The connection is not obvious, however; peers may be evaluating teachers on the basis of their peers' behavior in the teacher's class, as well as through direct influence of teacher behavior on the individual student. In support of this idea, in all three samples the observers' ratings of overall post-test classroom behavior (COR-P) correlated substantially with the classes' evaluation of the teacher (.51, .40, .70). In

Austin I and Kentucky, the post-test of student self-esteem (P-H) and general attitude toward life (SSC-A) correlated positively with class evaluations of teachers. Logically, these two aspects of a student's personality would seem to influence their evaluations of an authority figure. Finally, in Austin Year II, students were asked to rate how that particular teacher's class made them feel and, as expected, their perception of the impact of their class correlated positively (.68, p .01) with their evaluation of the teacher.

Classes' evaluations of their teachers correlated positively with all but one (Austin Year II, COR-SO) of the observer ratings of teacher behavior, in all three samples. (See Table V-1.) Furthermore, the SET class mean predicted student change over the year on attitude about school (SSI) in Austin I (p .00, 32.75% V) and Austin Year II (.00, 14.99% V), accounting for the highest percentage of the variance in each sample. Change in students' scores on the general coping measure, SSC-C, were predicted by SET class means in Austin I (p .00, 12.88% V) and Austin II (p .03, 7.61% V). The class' evaluation of the teacher also predicted the students' change over the year on general attitude toward life (SSC-A) in Austin I (p .01, 10.50% V) and Kentucky (p .01, 13.48% V) although the relationship was non-significant in Austin Year II. Student change over the year on self-esteem (P-H) was strongly predicted by the class' evaluation of the teacher in Kentucky (p .00, 23.85% V). In Austin Year II, that relationship was significant (p .01, 11.42% V) only for the quadratic form of self-esteem (SSC), i.e. very high and very low teacher evaluation predicted low self-esteem gain, while the average range of teacher evaluations predicted greater gain in self-esteem scores. Class evaluations of teachers (SET) did not predict regressed change over the year on achievement tests, but the How-This-Class-Makes-Me-Feel measure did predict 7.8% of the variance in achievement gain in the one sample where it was used (Austin II).

The converse validity question concerns what measures predict this one. As expected, the strongest predictor of the students' evaluation of the teacher are the students' attitude toward school (SSI). Not only did the students' attitude account for the majority of the post-test variance in teacher evaluations (75.4% V Austin I, 30.3% V Austin II), but it also strongly influenced change over the year in the students' evaluation of teachers (32.8% V Austin I, 15.0% V Austin II, 19.5% V Kentucky). Given that these measures correlate highly and predict each other strongly, a strong interaction obviously exists between students' attitude toward school and how the students perceive the teacher. A crucial question is how much this relationship is affected by teacher behavior. When the influence of the students' attitude toward school (SSI) is controlled, teacher kindly-understanding behavior had a significant effect on student evaluation (4.9% V Austin I, 19.0% V Kentucky).

Students' general attitude toward life (SSC-A) showed a similar influence on teacher evaluation although the influence was not as strong. In Austin Year II, general attitude did not predict the student evaluation post-test, but it did predict change over the year. All three measures of teacher behavior had more influence on change over the year in student evaluations than did the students' general attitude (see Table P-26 in Chapter VIII).

The How-This-Class-Makes-Me-Feel measure showed a strong relationship to the Student Evaluation of Teacher measure. How the students felt about the class was closely similar to post-test evaluation of their teacher (47% V Austin II). How the students felt about the class also strongly influenced change over the year in their evaluation of the teacher (26.5% V Austin II).

Students' coping behavior was measured twice from the students' own perspective (SSC-A, BRS-SR) and once from classmates' perspective (BRS-OR). In Austin Year I, self-reported general coping ability predicted post-test evaluation of teachers, as did Austin Year II peer-rated coping. Coping behavior also predicted change over the year in student evaluations of teachers, in the Austin samples (SSC-C: 12.9% V Austin I, 7.6% V Austin II; BRS-OR: 4.4% V Austin II). However, teacher behavior, of all three kinds, had more influence on student evaluations of them than did the students' coping behavior. (Table P-26).

One might expect the students' self-esteem or achievement level to influence their evaluation of the teacher; however, neither showed much influence on the post-test or on change over the year in SET scores. Teacher behavior had more influence on the students' evaluations than either self-esteem or achievement, except in Austin Year II where achievement predicted more change over the year in student evaluations of teachers than did teacher behavior. The students seem to have evaluated teachers on the teacher's interaction with students, without much coloring by their subjective feelings about themselves or their accomplishment in school work.

Relations to Teacher Behavior. In all three samples, kindly-understanding behavior had the strongest influence on student post-test evaluations (30.5% V Austin I, 14.4% V Austin II, 53.3% V Kentucky). However, when looking at change over the year in student evaluation of teachers, the three aspects of teacher behavior had about the same influence, although kindly-understanding behavior held a slight edge in Austin I and Kentucky. In Austin Year II, stimulating-inventive teacher behavior strongly predicted change over the year in student evaluations. When looking at predictors of change over the year in student evaluation in Austin Year II (between class analysis), teacher stimulating-inventive behavior interacted with student attitudes (SSI, SSC-A, HOWCL) and achievement (GMC-3) to predict the change. In both Austin II and Kentucky, the students' socio-economic status strongly interacted with teacher stimulating-inventive behavior to predict change over the year in students' evaluation of the teacher (6.13% V Austin II, 24.8% Kentucky). Higher SES level students valued stimulating-inventive teacher more highly than did lower SES students. Overall, kindly-understanding teacher behavior had the strongest influence on student evaluations, but students from high socio-economic background also were influenced by how stimulating and inventive the teachers were.

In the cluster analysis (see Chapter VI), the Student Evaluation of Teaching was one of the measures that distinguished teacher ability levels. This pattern replicated over all three samples. The students' evaluation of teaching measure strongly distinguished all three cluster groups, in all three samples.

How-This-Class-Makes-Me-Feel

How-This-Class-Makes-Me-Feel was constructed for use in Austin II, in order to pinpoint students' perceptions of the behavior and impact of the specific teacher whose "effects" were to be assessed. It was used for post-testing in Austin II only. The measure consisted of 10 Likert-type items, on a one-to-five scale (see Chapter III). The internal reliability of this measure was .83; test-retest reliability was .78.

This measure indicates how the students perceive the influence of a particular teacher. Students' positive feelings about the class were negatively correlated with teacher age (-.33). Perhaps as teachers increase in age, they pay less attention to how students feel about the class. Other evidence for this are the negative correlations of teacher age with teacher kindly-understanding behavior in Austin Year I and Kentucky, with a near-significant relationship in Austin Year II (p = .07, .23 V).

Students' positive feelings about their class were correlated with generally good class behavior (COR-P, .44), as rated by observers. Students in well-behaved classes have positive feelings about that class. (See Table V-2.)

Consequent Validity. Many of the student measures also predicted how the students perceived their class. Self-rated coping was the only measure that did not predict how the students reacted. The post-test (32.8% V) and gain (10.9% V) in peer ratings of student coping both strongly predicted how the students evaluated their class (see Table V-3). As expected, the student measures of attitudes (SSI, SSC-A) both post-test (52.34% V, 24.3% V) and gain (43.2% V, 25.7% V), predicted how the students assessed their classes. How the students evaluated the teacher (SET) was the next strongest predictor of how the students felt about the class (45.5% V post-test, 34.0% V change). Finally, the change over the year in student self-esteem (10.4% V), but not gain in achievement, predicted how the students would feel about the class. Thus, many aspects of students' lives contributed to how they felt about their experience in the class where they were studied.

The influence of teacher behavior on the HOWCLM scores was assessed by looking at the effect of controlling for teacher behavior (all three kinds at once) in the predictive equations. HOWCLM scores were predicted by teacher behavior: 12.6% of the variance (p .02) was explained by teachers' kindly-understanding behavior; 16.9% of the variance (p .006) by systematic-organized behavior; and 21.3% of the variance (p .002) by stimulating-inventive behavior. Taken together, allowing for shared variance, these teacher behaviors accounted for 27% of the variance in how the students felt about their class. (See Table V-3.) When the effects of teacher behavior were partialled out, the effects of student gains still showed very substantial effects. Indeed, the HOWCLM assessments were more closely related to student gains in attitude (SSI, SSC-A, SET) than teacher behavior. These attitude changes were affected by teacher behavior, of course. Teacher behavior in turn, had a greater effect on HOWCLM than gains in student achievement, in self-esteem or in self-reported coping skill.

Effects of Teacher Age and Experience

Teacher age, experience, and training may cause some of the observed differences in teacher classroom behavior. As expected, teacher age and experience (years of teaching) were highly correlated (Austin I .82, Austin II .88, Kentucky .74). Age and degree were moderately correlated (Austin I .47, Austin II .59, Kentucky NS). Degrees (B.A. or M.A.) and experience were also moderately correlated (Austin I .58, Austin II .62, Kentucky NS).

In looking at effects on teacher behavior, only one strong, replicated effect was found. The older the teachers were, the less they were rated as exhibiting kindly-understanding behavior (Austin I -.37, Austin II NS, Kentucky -.40). In Kentucky, age was also negatively correlated with ratings of systematic-organized behavior (-.56). However, the Kentucky teachers were very homogenous in age (most in the 30-39 year age range), and observers noted a preponderance of stimulating-inventive behavior in the Kentucky teachers as a group.

One other source of evaluation of teacher classroom behavior was the Student Evaluation of Teachers (SET class means). A substantial negative relationship existed between the teacher's age and the students' positive evaluation of teacher behavior in the Austin I (-.43) and Austin II (-.47) samples. Curiously, although highly correlated with age, teacher experience did not have any predictive effect on any indicators of teacher classroom behavior, in any sample. These elements of teaching style (kindly, organized, stimulating) seem to be well established by the start of teaching. They act more like expressions of individual personality than products of on-the-job learning. Student Evaluation of Teachers did show an effect in Austin Year II. In

Austin II, teacher experience accounted for 18.3% (p .00) of the variance in post-test SET and 15.3% (p .00) of the variance in change over the year in Student Evaluation of Teachers. Overall, these findings indicate that the older teachers were less likely to treat students in a kindly-understanding manner and, perhaps as a result, students saw the older teachers as less effective teachers.

Finally, teacher demographic variables did not have much effect on student measures. The only strong effect occurred in Austin I when teacher age was negatively related (-.48) with students' change in general attitudes (SSI). In Kentucky, teacher experience accounted for 16.6% (p .00) of the variance in students' gain in their general attitude (SSI), and in a positive direction.

When observers were rating teacher behavior styles, they also rated the behavior of the class as a whole (COR-Pupil). Generally, a high rating on the class behavior scale indicates orderly participation by the class, which at least partially reflects the teacher's effect upon the class. In only one sample did teacher experience or age have an effect on behavior; that was a negative correlation (-.48) with age in Kentucky. In all three samples, on the other hand, all three types of teacher behavior correlated highly with positive pupil classroom behavior.

Teacher age, experience, and even classroom behavior did not affect student attendance. In Austin Year I, only teachers rated high on systematic-organized behavior tended to have fewer absences (F = 6.38, p .05, 10.85% V). Attendance seems to have been largely determined by factors outside the teachers' control or influence.

Teacher age and/or experience frequently correlated negatively with observer ratings of teaching behavior (see Table P-7 in Chapter VIII). Both students and observers found that desirable teaching behavior occurred relatively most often in the classes of teachers who were in their twenties or early thirties. However, there were no significant relationships between age or experience, on the one hand, and class behavior (except a negative effect of age in Kentucky), on student attendance, or on student outcomes. Summing up, teacher experience (and age) consistently showed no relationships to desirable outcome measures, and showed negative relationships with both student and observer ratings of teacher behavior.

These findings contain an important practical implication. For generations, teacher salaries have been defined strictly by years of tenure. Teacher organizations have traditionally opposed replacing this seniority-system with a "merit system", disbelieving that school administrators would reward individual teachers according to objective, valid criteria of true merit. Teacher groups would rather settle for securely predictable salary increases for those who stay on the job.

The present evidence seems quite clear, however, that teacher effectiveness does not improve with increasing age and experience, for teachers as a whole. The evidence is cross-sectional, of course. Longitudinal research is necessary to make sure that initial selection, or some other factor, did not make different age-cohorts different in effectiveness, and to find out if increasing age does lead to decrements in effectiveness for many teachers, whether through loss of vigor, cumulative fatigue, burn-out due to stress, or other processes.

Whatever the causes, however, the lack of connection between age, and experience, observed effectiveness, and student outcomes means that rewarding all teachers solely for length of tenure is to penalize effective teachers and to encourage the continuation of even highly ineffective teachers. While no teacher wants to be singled out for negative criticism, teachers are very well aware of this inequity. Many of them, especially ones who know very well that they are relatively effective, privately express dissatisfaction that genuine merit goes so systematically unrewarded. If a valid evaluation system were honestly and humanely administered, the informal remarks of the teachers in this study suggest that it would be welcomed by a large majority of teachers.

The present study suggests, moreover, that it is possible to arrive at a highly reliable estimate of the quality of individual teaching, combining evidence from several sources: trained, educationally experienced observers, systematic student evaluations, evidence of student cognitive and affective gains, and other pertinent evidence as it arises. No one of these components should be mechanically used to make a decision; but all, together, almost certainly can lead to valid assessments of teacher effectiveness.

Teacher's Effect on Student Time-On-Task

The classroom observers also observed six students per class in a special study, to measure the amount of time the students directed their attention to learning tasks. Teacher age and experience did not have any direct effect on student time-on-task, in any sample. Teacher classroom behavior, however, did affect student time-on-task. In both Austin I and II, systematic-organized teachers tended to get the students to stay on task (Austin I, r = .39, 15.13% V; Austin II, r = .50, 25% V). Furthermore, in Austin Year II, kindly-understanding r = .37) and stimulating-inventive teachers (r = .39) tended to get students to attend to learning tasks.

When the classes were observed, the teacher's time spent on tasks was recorded 20 times in each class period. This measure could not be related to other measures, because there was little variability among teachers. In Austin Year II, for example, the teachers averaged 93% of their time on-task, and the standard deviation was small (.08). Since this measure did not discriminate among teachers, it was not compared with other data. This finding is testimony to the constant, hard work demonstrated by these teachers.

Consistency and Stability of Teacher Behavior

If a considerable part of teaching behavior is an expression of the teacher's personality and values, and if individual personality is persistent across time, it should be possible to find a substantial degree of individual stability across time in teaching behavior, if the right kinds of measures are taken, at the right levels of generality. In designing the current Teaching-Learning Interaction Study, provision was made to test the proposition of teacher consistency in several cross-checking ways. First, teaching behavior was rated by trained observers with Ryan's Classroom Observation Record (Ryan, 1960): 20 scales that reproduced Ryan's factors of Systematic-organized (COR-SO), Kindly-understanding (COR-KU), and Stimulating-imaginative (COR-SI) behaviors, in social studies classes, chiefly. Many of the same teachers were observed again in the following year by a team of half-old, half-new observers. However, both classes and subject area (reading) differed from the first year. In each year, the observers also rated student behavior on seven scales, yielding a factor score on "Positive Work Orientation" (COR-Pupil) for each class. Finally, an independent appraisal of the teachers by their students was carried out in both years, using the Student Evaluation of Teaching (SET) instrument. Again, these ratings were based on different classes of students, in different subject areas, from year to year.

The stability of teacher behavior was analyzed using a subset of 33 Austin teachers for whom all measures were available in both years of the study. (Peck, Olsson and Green, 1978) The correlations of the ratings of the teachers, between instruments and between years, were tested for significance using a two-tailed t-test, with the probability of a Type I error set at 0.01 and 26 degrees of freedom. At this level, correlations of 0.48 or higher are regarded as significant.

For this subset of teachers, all of the teacher factor scores on the COR were significantly correlated across the two years. The "Kindly-understanding" score showed a .79 correlation; "Systematic-organized" was .73; and "Stimulating-inventive" was .56. However, since half of the raters in the second year were the same as in the first, at least part of the agreement between the two years might have been due to a "carry-over" effect, in that the rating of a teacher in the second year of the study might tend to reflect the opinion formed by the same rater in the first year. To address this issue, the COR factor scores for Year II were recomputed for each teacher, using only those ratings made by raters who had not observed that particular teacher in the first year of the study. In all, three different raters were employed for this purpose, one per teacher, and scores for 23 teachers were obtained. (Five of the teachers did not have different raters in the second year.) These second-year scores were then correlated with the original first year scores, generated by a different set of observers. All of the correlations were significant (KU = 0.71; SO = 0.74; SI = 0.57). The two independent sets of raters from two different years described the teachers in substantially the same way. Furthermore, these descriptions were quite similar to those obtained using all raters in both years of the study. It would appear, then, that as measured by trained observers' ratings, teachers showed substantial stability of behavior, even when teaching different subjects to different groups of students in two successive years.

In addition, if the COR-Pupil score can be said to reflect a teacher effect, to some degree, then its significant correlation across the two different classes in the two years (.68 for both full sets of raters; .65 for different raters for different years) further suggests continuity of teacher behavior, insofar as its presumed consequences appear to be similar across different classes of students.

Ratings of teachers by the students, themselves, led to the same conclusion. Teachers' scores on the SET, derived at the end of each year of the study, showed a significant correlation of .68 across the two years, although the subject area, as well as the membership of the classes which did the rating, differed from year to year.

Comparing scores across instruments further indicates substantial agreement between trained observers and student ratings of teachers. All correlations between the COR factor scores and SET scores within years were found to be significant at either the .05 or .01 probability level (see Table V-1). In Austin Year I, the SET scores correlated .68 with COR-KU, .54 with COR-SO, and .47 with COR-SI. In Austin Year II, SET correlated .54 with COR-KU, .45 with COR-SO, and .38 with COR-SI. The SET and COR Pupil scores correlated .51 in Year I and .40 in Year II, another positive finding on a more indirect test of teacher (or teacher-effect) consistency. In Kentucky, SET similarly correlated positively with KU (.73), SO (.68), and SI (.66).

Some of these correlations conceivably could have been the product of non-random assignment by ability level, in that having similar types of students with regard to achievement level might evoke in teachers similar teaching strategies and cause them to exhibit similar behavioral characteristics from year to year. However, the correlation between the achievement pre-tests (the CTBS in Year I and the GMG in Year II) of the pairs of classes for each teacher was only .26 (non-significant). Hence, there is no indication of initial similarity in student ability level between the teachers' classes from year to year. The similar ratings of the teachers behavior cannot be attributed to this factor.

In sum, different sets of adult and student judges, in two successive years, described these teachers with a substantial degree of consistency, even though the teachers taught different subjects in the two years. It does appear that there is a considerable amount of individual stability in important aspects of teaching behavior, at least across a two-year span.

Table V-4 shows the patterns of intrapersonal consistency of individual teachers across the three aspects of teaching behavior. As the high intercorrelations would lead one to expect, from 40% of the teachers in Austin I to 70% of those in Kentucky had scores that were at the same level (upper 30%, middle 40%, or lower 30%) on KU, SO, and SI. Another 19% (Kentucky) to 44% (Austin I) were at the same level on two factors, and an adjoining level on the third. Teachers who had a high score on one factor but a low score on another, made up only 4% of the Austin I sample, 16% of Austin II, and 7% of Kentucky. That observers saw 4% - 16% of the teachers widely different from one dimension to another, however, suggests that the observers' judgements were not subject to a pervasive halo effect. They could discriminate differences within teachers; but in the case of most teachers the observers did not see marked intrapersonal differences.

Using the same subset of common teachers as in the above study, the cluster analysis study (see Chapter VI) also provided data on the stability of teacher behavior. The cluster analysis differentiated teachers into three levels of teaching effectiveness: high, average, and low. When comparing the same teachers' classifications in the clusters in the two different years, it was found that out of 32 teachers used in this study, 19 remained in the same classification, five changed to a less effective classification, and eight changed to a more effective classification. No teacher changed from low to high effectiveness, or vice versa. This method of analysis, in its own way, demonstrates that the behavior of about 60% of the teachers was stable over the two years. Forty percent did change somewhat, most of them by gaining effectiveness. In two or more cases, this was clearly influenced by the teachers' reactions to the first-year feedback of their students' evaluations of them. They tried to improve, and they succeeded. The feedback process did affect the study, in this way. In no case, however, was there a dramatic change from one extreme of the scale to the other.

Effects of Teacher Behavior on Class

Teacher and Student Outcomes

As mentioned earlier, teacher behavior (COR-KU, SO, SI) was very strongly associated with the observed behavior of the pupils, as a group (COR-P). Since both evaluations were made by the same observers, much of this correspondence could conceivably be due to halo effect, although the independent contribution by different sets of observers and of students, over two years, limits this possibility. (See Tables P-17, 21 and 27 in Chapter VIII.)

Assessing the effects of teacher behavior on student gains is free of such a threat from rater halo-effects, although it suffers from the much less than perfect relevance of the gain measures. The standardized achievement tests bore only a slight, distant relationship to the particular curricular content of the actual classes -- and the strongly differentiated sub-groups of students within classes. The general attitude and coping measures (SSC-A, SSC-C, BRS-CR, BRS-SR), although of reasonable to good reliability, by their nature reflect all influences of the year's experience on each student, not just the specific impact of one particular teacher. Even the SSI measure of attitude toward school must reflect the impact of all teachers and school characteristics over the year. Only the SET and the HOWCLM measures assess the impact of the one, specified teacher, and that teacher, alone.

Furthermore, while "the" teacher whose presumed effect was in question did have the student in class for at least two hours a day, one of them in the subject corresponding to the achievement test, each student encountered up to four other teachers, as well, each day. The impact of "the" teacher was thus considerably diffused. Consequently, it seems reasonable to suppose that if any systematic relationships are detected, through all this "noise", the strength of the observed signals probably understates the strength of the actual relationships between teacher behavior and student changes over the year. This can only be an assumption, however; it cannot be proved within the present data.

As it turned out, there was a significant, though not overwhelmingly powerful or consistent pattern of the predicted, positive influence of effective teaching behavior on cognitive, affective and coping skill gains. (See Table P-26 in Chapter VIII.)

Also as predicted, though in very modest proportion, teacher behavior interacted with one or another student entry characteristic to affect student changes over the years. (See Table P-28 in Chapter VIII.).

These findings are summarized by outcome, separately for each sample, as follows.

Teacher and Teacher-By-Pupil Effects on Change in Achievement

Austin I

There were few significant teacher effects on achievement change in this sample. Within-class, COR-SO interacted with the achievement (CTBS) pretest (p .01, .34% V) and with student coping (BRS-OR; p .05,

.34% V). They indicate that teachers' degree of systematic organization had some impact on achievement, but this varied depending on students' initial levels of achievement and coping skill. Students who were low in achievement, at entry, did better with teachers who were extremely high or low in their organization than with more average teachers. High initial achievers gained less with either very organized or very unorganized teachers. Conversely, students low in initial coping (peer-rated), gained less with teachers (Figure V-1) with extreme SO scores, while good copers gained less with such teachers than with teachers in the middle ranges. Just a few teachers and students with extreme scores showed these special effects.

Between-classes, COR-SO interacted with the class' level of self-reported general coping ability (SSC-C; p .05, .5.20% V). Classes very high in coping achieved better if teachers were either very high or very low COR-SO, whereas classes lower in coping achieved better for teachers who were intermediate on the dimension. (Figure V-3).

Teachers' degree of kindly-understanding was significantly predictive of achievement gain, in a quadratic fashion (p .05, .5.20% V). (See Figure V-4.) Teachers very high or very low in this dimension were more facilitative of their classes' achievement than were teachers average in kindly-understanding behavior (remembering that the low teachers had more low-achieving students and the high teachers, more high-achieving students).

Austin II

Teacher's degree of kindly-understanding (COR-KU) showed a significant quadratic interaction (p .05, 2.09% V) between-class. Teachers very low or very high on the dimension enhanced their classes' achievement more than the average KU teachers. (Figure V-5). This replicates the Austin I findings, and also the cluster analysis finding (Chapter VI). Low KU teachers apparently had beneficial effects despite their limited kindness and understanding, possibly because they set less demanding standards for their relatively low-achieving students. COR-KU also interacted significantly with the achievement pretest (p .05, 1.23% V). (Figure V-6). For classes high in initial achievement, there was a linear relationship, such that the greater the kindness and understanding of the teacher, the more the class gained in achievement. Classes low on the achievement pretest, however, showed more gain with low KU teachers. Systematic organization of teachers (COR-SO) also was a significant, quadratic predictor of class achievement gain (p .01, 2.33% V). (See Figure V-7). As with COR-KU, classes with teachers very low or very high in organization showed more gain than classes with teachers average on this dimension.

Since curvilinear relationships of achievement gain to teacher kindly and organized behavior also appeared in the within-class analysis, the non-random assignment of students does not entirely explain this phenomenon. Teacher behavior seems to have had real but different effects on high and low achievers.

There were also interactions of teacher KU with self-rated coping skill (BRS-SR) and with classes' assessment of the teacher's impact (HOWCLM). Good-coping classes gained most with teachers who were high on KU. Poor coping classes gained more with teachers who were low or medium, but not extremely low, in KU behavior. Figure V-8 shows this; it also shows that no classes of extremely high KU teachers initially rated themselves more than one standard deviation below the mean in coping skill, unlike the other classes, with teachers lower in KU. This could have been an assignment effect. Figure V-9 shows that classes with high KU teachers gained more in achievement, the more positively they assessed the class experience at year's end (HOWCLM). Conversely, classes with low KU teachers gained more, the less positively they assessed the year's experience. Exactly the same pattern was found for Systematic-Organized teaching (Figure V-10).

Kentucky

There was no between-class analysis of teacher effects on achievement in the Kentucky sample, because the achievement tests were too dissimilar across classes. In the within-class analysis, all three kinds of teacher behavior showed a similar pattern of influence on achievement gain: systematic-organized behavior, Figure V-11, (p .00, 1.0% V); stimulating-inventive behavior, Figure V-12, (p .03, .40% V); and kindly-understanding behavior, Figure V-13, (p .00, .72% V) In each case, teachers rated low on this behavior helped promote the most gain for students who were low on the initial pretest. Conversely, teachers rated high on each of these behaviors seem to have helped the most with students who initially scored high on the pretest. In this within-class analysis, where there could be no effects of non-random pupil assignment to teachers (no nesting effect), it appears that "effective" teaching of all three kinds did the most good for high-achieving students. Low achievers did better with the "less effective" teachers. This was not due to any teacher-class matching effect. Low teachers really were better for low achievers than average or high teachers.

Stimulating-inventive teacher behavior interacted with several different pupil pretest measures to predict change in achievement over the year: SSC-C (p .00, 1.10% V), SSC-A (p .00, 1.11% V) (Figure V-14, 15, 16), SSI (p .00, 1.10% V), self-esteem (p .00, 1.0% V), self-rated classroom behavior (p .00, .72% V) and peer-rated classroom behavior (p .00, .58% V). Figures V-14, 15 and 16 illustrate the complexity of these three-way interaction effects. Among initially low-achieving students, their gain in achievement was greatest when they had very positive initial attitude, in general (SSC-A) and were placed with relatively stimulating teachers. Low achievers who had low attitude scores, on the other hand, gained best with uninventive teachers, least with inventive teachers. Among initially average achievers, while teacher inventiveness made little difference in gain for students with a negative attitude, students with a very positive outlook did considerably better with teachers of high or medium inventiveness than with uninventive teachers.

Finally, among high-achieving students, those with a negative initial attitude gained most with high or medium inventive teachers. High achieving students with positive attitudes did about the same with all teachers.

These patterns have an additional feature of considerable importance. All students who were above their class mean in initial achievement showed much more gain in achievement scores, over the year, than students who were at the class average in initial achievement. Indeed, the average students who had a poor outlook lost ground if they had unstimulating teachers. All of the students who had low initial achievement scores, compared to their own classmates, lost even further ground over the year. They had negative gain scores, particularly if they started with a poor attitude and were placed with highly stimulating teachers.

The difference in gain was so substantial, it seems clear that this last kind of student reacted very negatively to the impact of stimulating teacher behavior, in the Kentucky setting.

A somewhat similar pattern involved the three-way interaction effect of initial achievement, initial self-rated coping skill, and stimulating teacher behavior (Figures V-17, -18, and -19). Low-achieving students lost ground with teachers average or high in stimulating power, particularly if their self-perceived coping skill was also poor; they lost less if they had a more positive view of their coping skills. Low achievers placed with unstimulating teachers did no better if their initial coping was poor; but if their coping was good, and they had uninventive teachers, they actually made as much positive gain in achievement as students who were average achievers to begin with, and much more gain than low achievers with equally positive self-perceived coping, who had more stimulating teachers. Since this was the result of a within-class analysis, this striking effect cannot be attributed to teacher-pupil nesting effect. It illustrates the differential sensitivity of poor achievers who portray themselves as poor or good copers, to different levels of teacher stimulation.

Average achievers showed modestly positive gains with all teachers, except for those with distinctly poor initial coping scores. This subgroup of students lost ground in their achievement scores when they had unstimulating teachers. Unstimulating teachers also had a much less positive effect than more inventive ones, on the gains of high-achieving students who had either very low or very high coping scores. The three-way interaction pattern reveals that the same kind of teaching can have strikingly different effects on different types of students. In this case, the difference is particularly marked in the contrasting effects of low teacher stimulation on poor achievers with poor self-portrayal and those with good coping skills. This same kind of teaching also had a much different effect on students who showed positive coping skills but were high or low on initial achievement.

General coping skills, a positive attitude, and positive self-esteem all facilitated achievement in stimulating teachers' classrooms.

Systematic-organized teacher behavior was also found to interact with three pupil characteristics in affecting change in achievement over the year: self-ratings on classroom coping (p .01, 1.0% V), peer-rating on classroom coping (p .01, .51% V), and self-esteem (p .03, .41% V). (See Figure V-20 for an example.) Students who had low self-esteem gained much more in achievement with well organized teachers. Students with high self-esteem showed the opposite reaction. They gained much more with unorganized than with organized teachers. If their self-esteem somewhat reflected their actual competence, it may be that they felt free to do their best when less constrained by highly organized instruction. Students with low self-esteem needed such guidance, it seems.

Kindly-understanding teacher behavior was found to interact with two pupil characteristics to predict change in achievement over the year: peer-rated academic coping (p .05, .50% V), self-rating of general coping (p .03, .30% V) and self-esteem (p .01, .89% V). Figures V-21, -22, and -23 illustrate some of these findings, which chiefly involved the relatively few pupils who were very low or very high in self-esteem, or in self-rated classroom coping. Students who were low in self-rated coping (BRS-SR) did least well with teachers low in kindly-understanding behavior (Figure V-21). Conversely, students with high self-ratings for coping skill gained more with teachers low on KU, who perhaps left them free to cope, on their own.

The effects of self-esteem were still more complex; both a linear and a curvilinear effect of teacher KU were present. Figure V-22 shows that students low in self-esteem gained more with teachers high on KU, while students with high self-esteem gained more with low KU teachers. Figure V-23 modifies this picture. When the very extreme levels of teacher KU are separated out, it appears that extremely high KU teachers were not as beneficial to gain for students low in self-esteem as more average teachers, though they were more beneficial for such pupils than teachers who were very low on KU. At the other end, among students who were high in self-esteem, teachers extremely high on KU promoted more gain than teachers who were average or above average on KU, but still not as much as very low KU teachers.

Demographic Influences on Achievement. Only Anglo students were in the Kentucky sample, so no ethnic effects were present. A sex by socioeconomic analysis was done for achievement. In every kind of analysis (pre, post, post-pre, and regressed change) the lower class boys were much lower on achievement than high status girls. On the achievement pre-test, lower class males demonstrated poorer achievement scores than any of the other sex-by-status groups.

In change over the year, both middle and lower class boys gained significantly less than high SES girls. These findings follow the usually expected SES effects found in many behavioral studies. Particularly in school, high status girls usually set the standards for excellent classroom behavior and achievement. They are allowed and expected to achieve in school, at least up to puberty, around the sixth to seventh grades.

Teacher and Teacher-By-Pupil Effects On Change in Self-Esteem

Austin I

The within class analysis indicated that teacher "Systematic, Organized Classroom Behavior" (COR-SO) significantly interacted with students' initial level of self-esteem in predicting final level of self-esteem (p = .00, .85 V). Figure V-24 shows that highly organized teachers helped all students maintain their initial level of self-esteem. Less organized teachers substantially helped the self-esteem of students who started out low, but students with high initial self-esteem lost ground over the year if they had low SO teachers. This effect did not appear in the between-class analysis but it was found in a general analysis (Peck, 1977). This pattern indicates that organized teaching really did have this differential effect on change in pupil self-esteem, in this sample, depending on the level of a pupil's initial self-esteem.

In both the between ($p = .03$, 4.3% V) and within ($p = .02$, .25 V) analyses, Teacher COR-SO interacted with pupils' attitude toward school (SSI) in affecting change in self-esteem, and in the same way. (See Figures V-25 and V-26.) The effect, linear in one case, quadratic in the other, was that students with poor initial attitudes improved in self-esteem with all teachers, but relatively more with unorganized teachers. Conversely, students with positive attitudes toward school maintained their self-esteem with highly organized teachers but lost self-esteem with less organized teachers (except with a few extremely unorganized teachers, in the within-class analysis).

The between analysis indicated that teachers' degree of COR-SO also significantly interacted with class attitude toward life (SSC-A, $p = .01$, 5.61% V) in predicting final level of self-esteem. Classes which had very positive attitudes toward life in general (Figure V-27) showed the greatest gain in level of self-esteem when their teachers were high in COR-SO.

One might speculate that students with very positive attitudes toward school, and life in general, expect a clear structure that will facilitate their classroom learning. When they are in classes with teachers who have low COR-SO characteristics these expectations may not be realized. Thus, their level of self-esteem might decrease because they experience boredom, and frustration at not being taught according to their expectations.

The results of the between group analysis also yielded similar results for teacher stimulating-inventive behavior (COR-SI). This teacher characteristic interacted with students' attitudes toward school (SSI, p .05, 4.61 V) and life in general (SSC-A, p .01, 6.35% V) in affecting of self-esteem. Classes with teachers high in COR-SI which had a positive attitude towards life and school, increased in level of self-esteem more than positive classes with teachers who had moderate or low COR-SI. (Figures V-28 and V-29.) Classes with a positive attitude toward life and school, had the least gain with the less stimulating teachers. Conversely, classes with poor initial attitudes gained much more self-esteem if they had uninventive teachers.

Classes having a positive attitude toward life and school probably expect their classroom learning to be stimulating and challenging, and expect to learn from teachers who are stimulating. Teachers who are not very stimulating or inventive would not meet these students' expectations. Such students may not find these classes reinforcing. Their self-esteem may therefore suffer more than that of less-optimistic students.

Classes with poor attitudes toward school and life in general tended to have greater gains in self-esteem when their teachers were low in COR-SI. Such classes may expect their classroom environment to be routine, with no stimulating challenges. Teachers low in COR-SI would meet this expectation. Such classes might find this type of teaching (low COR-SI) more reinforcing or less threatening than high COR-SI teaching and, thus, have greater gains in self-esteem with low COR-SI teachers.

COR-SI interacted complexly with entering self-esteem and self-descriptive coping skill (Figures V-30 and V-31). Low SI teachers' students with low self-esteem gained most when they reported good coping skills. This was also true with very high SI teachers. High or medium teachers' effect on self-esteem was less affected by students' coping skill, when the students had low self-esteem. Self-confident students showed a similar pattern, except that they gained self-esteem with very stimulating teachers if their initial coping scores were low.

Teachers' kindness and understanding (COR-KU) interacted complexly with initial self-esteem, and SES (p .01, .61% V) and SET (p = .01, .59% V) in a way that showed within-class effects on change in self-esteem (Figures V-32, V-33). Teachers very low on KU had a somewhat more negative effect than other teachers on the self-esteem of high SES students who started with high self-esteem. Low SES students gained most in self-esteem with teachers who were either very high or very low on KU. Intermediate teachers had no particular effect. Teachers' KU also interacted with the students' attitude towards life (SSC-A, p .05, 6.9% V) in a between-class effect on change in self-esteem (Figure V-34). Teachers extremely high or low on KU had a much more negative effect on self-esteem than more intermediate teachers, among students with a negative outlook on life. For students with highly positive attitudes, on the other hand, teachers of either extreme had a much more positive impact on self-esteem than did more intermediate teachers.

Austin II

Teacher systematic-organized behavior had an effect on self-esteem change, in the between-class analysis, that depended on the initial level of the students' self-esteem (p .05, 5.51% V). Figure V-35 shows that extremely organized or unorganized teachers had a sharply opposite impact from intermediate teachers. They facilitated large gains in self-esteem for students who had low initial self-esteem; but students who were high to start with had much lower terminal self-esteem with these extreme teachers, especially extremely unsystematic ones.

Teacher SO also showed two interaction effects in the within-class analysis. Figure V-36 illustrates one of these, that depended on a student's entering achievement level. Students who were very low achievers gained self-esteem with low- or medium-organized teachers; they lost self-esteem with highly systematic teachers, especially the extremely systematic ones. Teacher SO did not make much difference for students in the middle range of achievement. High achievers, however, showed almost the same reaction as low achievers. They sharply lost self-esteem with extremely organized teachers, less with organized ones, and least with low to medium SO teachers. Figure V-37 shows how the effect of SO teaching varied with self-esteem pretest level and (individual) Student Evaluation of Teaching Score, particularly at the upper level of initial self-esteem. Low or medium SO teachers did not affect gain in self-esteem any differently in this upper range; but the extremely high teachers had a negative effect on self-esteem among students who had initially given high ratings of their teacher.

Stimulating teaching interacted with entering self-esteem and self-described coping. Extremely unstimulating teachers had a sharply negative effect on students who had high self-esteem to start with and who saw themselves as effective copers (Figure V-38). Students in the middle range of initial self-esteem (Figure V-39) gained in self-esteem with unstimulating teachers if they started out as poor copers, but lost self-esteem if they were good copers. Students low in initial self-esteem who described themselves as poor copers gained greatly in self-esteem with uninventive teachers; if they portrayed themselves as good copers, teacher inventiveness didn't have much effect (Figure V-40).

The kindly-understanding aspect of teacher behavior, in the between analysis, affected self-esteem change depending on initial student coping score (SSC; Figure V-41). Teachers with extremely high or low scores on KU, working with initially poor copers, had a strong positive effect on their self-esteem. Students who saw themselves as good copers, on the other hand, lost dramatically in their self-esteem with either kind of extreme teacher and, to a lesser degree, with high KU teachers.

Student Socio-economic status (within-class) influenced the way teacher kindliness affected self-esteem, in a somewhat similar way, depending on initial level in self-esteem. Students above average in self-esteem at the start (Figure V-42), who were either very low or very high in SES, lost self-esteem if they were with teachers at either extreme on KU. This was particularly true of the low status children. Students below average in initial self-esteem (Figure V-43), and of low SES, lost the most in self-esteem with teachers very high or high on KU. Just the opposite was true of students low in self-esteem but high in

SES; they maintained self-esteem best with very high and high KU teachers.

Figure V-44 shows how entry-level self-rated coping modified the effect of teacher KU on change in self-esteem. Self-confessed poor copers gained most in self-esteem with very kindly teachers. Self-rated good copers did slightly better with extremely high or low KU teachers then with intermediate ones, but the difference was slight. This finding is in contrast to the one involving the sentence completion measure of coping skill. The difference may come from the fact that frank self-ratings are more subject to distortion than the slightly less obvious sentence-completion technique, even though the latter was also fairly easy to see through because of its multiple-choice format.

Kentucky

In the between-class analysis, very much like one of the effects of extreme COR-KU in Austin II, teachers with extremely high or low systematic-organized scores had a positive impact on the self-esteem of classes which had low initial self-esteem, but a very negative impact on classes that were high in initial self-esteem (Figure V-45). The effect of KU on class self-esteem was also modified by the classes' self-rated coping scores (Figure V-46). Again, it was the extremely high and low KU teachers, especially the very low ones, who had an unexpectedly large negative impact on classes with good self-esteem at the outset, yet whose low self-esteem classes gained more than any other classes.

In the within-class analysis, self-esteem change was affected differently by kindly-understanding teaching, depending on a student's initial attitude toward school (p .04, .45% V). Very kindly teaching had an especially positive effect on the self-esteem of students who liked school to begin with. Above average teachers had a less extreme but still positive influence. Teachers low on KU had a distinctly negative effect on these initially positive students. The effects were not appreciable among students who were average in initial attitude. These who had a very negative attitude responded like those who had a very positive attitude: best, to very kindly teachers, least well to average or low KU teachers (Figure V-47).

Another three-way within-class effect showed the effect of teacher KU modified by initial self-esteem and attitude toward school (p .00, .57% V). Among students with high initial self-esteem (Figure V-48), teacher KU behavior had its most marked effects among students with very positive or very negative initial attitudes toward school. In both cases, the students of high KU teachers maintained self-esteem considerably better than those of low KU teachers. Among students who were average in their initial self-esteem, this same effect appeared very strongly for those with very positive initial attitudes. Teachers low in KU had a very negative effect on these students' self-esteem, while high teachers had a positive effect. Among students with low initial self-esteem, the same effect was strongly evident for those with positive initial attitudes toward school though not for those with less positive attitudes. Positive students gained self-esteem with high KU teachers but lost it with low KU teachers.

Teacher and Teacher-By-Pupil Effects on Changes in Attitude Toward School

Austin I

In the between-class analysis, all three aspects of teacher behavior showed the expected, positive effect on change in attitude toward school: KU (p .00, 25.9% V), SO (p .01, 17.4% V), SI (p .00, 19.1% V). The linear effect of SI was accompanied by an additional curvilinear component (p .01, 8.1% V). Figure V-51 shows that positive attitude changes occurred mainly in the classes of highly stimulating teachers, but there was also a slight gain with the teachers very low on SI. There was little change in attitude in the classes of average teachers. The attitudes of classes with teachers high on these factors showed much less of the normal decline than classes with lower-rated teachers. Since this could possibly be the effect of nesting more positive students with effective teachers (See Chapter VI), this finding must be cross-checked before taking it at face value; but at least no regression-to-the-mean effect caused the attitude of students in these classes to get worse. The best available cross-check to rule out a nesting effect was the within-class analysis.

Teacher characteristics interacted significantly with pupil entry characteristics to influence school attitude change, in the within-class analysis. In particular, degree of kindly-understanding (COR-KU), stimulating inventiveness (COR-SI), and systematic organization (COR-SO) all interacted significantly with self-esteem (.99, .86, and .81% V, respectively) in relation to SSI change. Figures V-52, V-53 and V-54 depict these interactions. Students low in self-esteem improved most in attitude if their teacher was low KU, low SO, and low SI. Students with high self-esteem, relative to the rest of their class, improved their attitudes more with teachers low on KU, and low or medium in stimulating inventiveness (SI) and systematic organization (SO). The most negative impact was that of very high KU and SI teachers on students with either very high or very low initial self-esteem. This finding runs contrary to expectation. For these special sub-groups of children, the impact of "effective" teaching (high KU, SO or SI) is opposite to its apparently positive effect on most classes, in the between-class analysis. This could be explained if the majority of children, who are in the middle range on most characteristics, responded positively to high KU, SO and SI teaching, while the small number of children with extremely high or low scores reacted in an opposite measure.

The effect of teacher SO also varied by the social class of the students (Figure V-55). Very high or high SO teaching had the most positive effect on the attitudes of high SES students, while the opposite was true for low SES students. Conceivably, low SES children found the less organized teachers less threatening or less uncomfortably demanding and thus liked school better; whereas high SES children apparently preferred systematic teaching, and were pleased when they experienced it.

The between-class analysis also showed several interaction effects. Teachers' stimulating inventiveness (COR-SI) interacted with self-esteem (P-H p .05, 4.47% V) and general attitudes of students (SSC-A, p .02, 4.81% V), in a very similar manner (see Figure V-56, V-57). At high class levels of both self-esteem and general attitude, the more stimulating and inventive the teacher, the more positive the class became toward school. There was little effect of this teacher dimension for classes average in self-esteem or general attitude. For classes low on either quality, there was an inverse affect of teacher's COR-SI. The less stimulating and inventive the teacher, the more positive the change in class attitude. Less confident and less optimistic classes did not respond well to creative, stimulating teachers.

Teacher systematic organization (COR-SO) showed two significant interactions with class characteristics that affected change in class attitude toward school. Figure V-58 illustrates an interaction between class coping (SSC-C) and COR-SO quadratic (p .05, 4.45% V). Classes high in coping ability showed more positive attitude gain with medium to moderately highly organized teachers, responding less well to teachers of either extreme. The reverse was true for classes low in coping ability. These classes gained more in attitude with teachers who were either highly organized or very low on this dimension. It made little difference for average classes. It may be that students with relatively high coping skills are more satisfied in a moderately structured classroom, with provisions for work but enough freedom to show some autonomy. Students low in coping skills, on the other hand, may be most satisfied with either a very tight structure which keeps them clearly oriented or with a very loose one which does not pressure them to perform.

Teachers' systematic organization also interacted significantly with the socioeconomic status of the class, in affecting class attitude toward school (p .0313, 4.61% V). Classes of higher SES showed more positive attitude gain, the more the teacher was organized. Classes at the low extreme of SES, however, showed an opposite pattern; the less organized the teacher, the more positive they became (see Figure 59).

A similar interaction between teacher's systematic organization and student social class (COR-SO x SES; p .0276, .39% V) also was visible within classes. High SES students showed relatively more attitude improvement as the teacher was more organized; while lower class students responded more positively, the less organized the teacher. Since lower class students tended to have lower achievement skills, it is not surprising if less teacher organization, associated with less pressure to perform, should facilitate a more positive attitude in these students; but the opposite effect appeared in the Austin II findings.

Austin II

There were several significant interactions of teacher dimensions pupil characteristics in predicting attitude (SSI) change, in the within-class analysis. Teacher's kindness and understanding (COR-KU) showed four significant interactions. COR-KU interacted with self-reported coping (SSC-C) (p .05, .5% V). Figure V-60 shows that students low in coping ability, with very low KU teachers, became more negative toward school while students with good coping ability improved in attitude with teachers very low on KU. Figures V-61 and V-62 demonstrate another complex interaction (Pretest x SET x COR-KU, p .05, .82% V). Teachers low in KU had the most positive effect on attitude change among students who had a positive attitude to begin with and had a high initial opinion of the teacher (SET). High KU teachers had a very negative impact on the school attitudes of students who were initially very positive toward school but who had a low opinion of that teacher early in the fall (Figure V-61). The positive impact of very low KU teachers, and the negative impact of high KU teachers was even more marked among students who had a low initial attitude toward school but a positive initial opinion of their particular teacher (Figure 62).

Teachers extremely high or low on KU had the most positive effect on attitude among students who were high to start with and had a positive general outlook (SSC-A). Students with positive school attitudes but negative general outlook reacted most negatively to very high KU teachers (Figure V-63). Among students with negative school attitudes, those with high coping scores were most positively affected by very high KU teachers, and next best by very low KU teachers. Those with a negative outlook also reacted best to very high KU teachers but not well to low KU teachers (Figure V-64). Finally, COR-KU quadratic interacted significantly with self-ratings of coping skill (BRS-SR), quadratic (p .05, .34% V). Figure V-65 shows that differences in teacher KU had effects at the two extremes of student coping; students low in coping, especially, improved their attitude more if they received a great degree of kindness and understanding from teachers.

Stimulating Inventiveness (COR-SI) also interacted significantly with the way students evaluated their teachers (p .05, .54% V). For students who evaluated their teachers poorly at the beginning of the year, their attitudes toward school improved more, the more stimulating and inventive were their teachers. For students who evaluated their teachers highly at the beginning of the year, their attitudes improved more if their teachers were low on this dimension (Figure V-66).

Systematic Organization (COR-SO) of teachers interacted directly with the SSI pretest in predicting SSI post (p .01, .90% V) (within).

Figure V-67 shows that students with relatively poor beginning attitudes toward school improved their attitude as a direct function of teacher's organization. However, those students beginning with good attitudes showed an opposite reaction; the less organized the teacher, the better the students' attitudes became. Finally, COR-SO quadratic interacted significantly with general attitude of students (SSC-A), quadratic (p .05, .39% V). Figure V-68 shows that a very high degree of teacher organization especially facilitated attitude improvement for students who began with either very poor or very good general attitudes. Teachers very low on this SO also tended to facilitate better attitudes for students who began with good attitudes, but not students who began with poor attitudes. Figure V-69 shows that teacher organization's effect on school attitude depended on students' final assessment of the teacher's impact on them (HOWCL individual score). Students who thought very highly of their teacher improved most in attitude with very high SO teachers. Students who thought poorly of their teacher, on the other hand, became more negative when the teacher was extremely systematic. This pattern suggests that being systematic is not, by itself, sufficient to insure positive student attitudes. There seem to be good ways and poor ways to be orderly, depending on other factors (such as kindness, and fitting expectations to students' capabilities and interests).

In the between-class analysis, the teacher dimensions of Kindly-Understanding (COR-KU) and Systematic Organization both had three interactions with pupil characteristics which significantly affected improvements in classes' attitudes toward school (SSI). Stimulating inventiveness was not predictive in this way.

COR-KU quadratic interacted significantly with the SSI pretest (p .04, 8.18% V). Figure V-70 shows that classes beginning with relatively good attitude improved this attitude as a direct, positive function of their teachers' Kindly-Understanding behavior. This was also true of classes beginning with relatively poor attitudes, with one exception. The classes that improved the most were actually those whose teachers were very low in COR-KU. Figure V-71 shows that there was a similar interaction effect of COR-KU with general attitude (SSC-A; p .05, 14.46% V). Classes beginning with relatively poor attitudes responded well to the teachers who were lowest in kindness and understanding; but low KU had a very negative effect on students who had good attitudes to begin with. COR-KU also interacted significantly with self-reported coping (SSC-C; p .05, 9.07% V). Figure V-72 shows that classes which rated themselves as good copers at the beginning of the year had better attitudes as a positive function of teachers' KU. The opposite was true of classes rating themselves low in coping; these classes improved their attitudes more if the teacher was low KU. Again, kindness and understanding was not sufficient for improvement of morale and motivation in students with poor self-perceived coping skill.

Teachers' systematic organization (COR-SO) had a significant quadratic interaction with poor-rated coping (p .05, 6.99% V). Figure V-73 shows that classes where students rated each other low in coping showed more attitude improvement if their teachers were very high in organization. Classes rated high in coping improved their attitudes more if their teachers were in the mid-range of this dimension. Poor coping may have been aided by a strong, imposed external structure leading to greater satisfaction with school. COR-SO also interacted significantly with self-esteem (SSD) (p .05, 8.08% V). Figure V-74 shows that classes low in self-esteem improved their attitudes most with very high teachers, and next for very low SO teachers. Classes high in self-esteem responded best to an average level of organization. Figure V-75 illustrates that the effect of teacher organization on attitude was modified by a class' final assessment of its teacher (HOW-CL). Classes that thought poorly of their teacher, at the end, nonetheless improved in their attitude toward school if they had a very highly systematic teacher. Classes that thought well of their teacher, on the other hand, showed most improvement in school attitude if their teacher had been intermediate in organization; and reacted least well if their teacher was extremely organized. COR-SO also had a significant quadratic interaction with social class (p .05, 6.5% V). Low SES classes showed by far the most attitude improvement with very highly organized teachers. High SES classes responded most favorably to teachers who were average on this dimension (Figure V-76), least favorably to extremely high or low teachers.

Kentucky

Teachers' systematic behavior (SO) was positively related to attitude improvement (p .03, 7.8% V) between-class. COR-SO also interacted with peer-rated coping skill (BRS-OR) (p .05, 6.61% V). Teachers' systematic organization showed a slight positive effect on class attitudes for classes low in initial coping skill; however, there was a strong negative relationship between class attitude change and COR-SO for classes with relatively good coping skills (see Figure V-77).

Classes with good coping skills apparently preferred less regimented teachers.

COR-SO's effect on attitude change was also affected by the Student Evaluation of Teacher at the beginning of school. Classes that gave their teacher a high rating initially, became much more negative in school attitude if they had highly organized teachers, less with medium SO teachers, and least if they had unsystematic teachers (Figure V-78; p = .02, 9.22% V).

Stimulating teacher behavior had an effect on school attitude (p.05, 7.13% V; Figure V-79). For initially negative classes, teachers extremely high or low on SI had a much more positive effect than other teachers. On the other hand, initially positive classes grew much more negative if they had extremely high or low teachers. Initial class coping skill (SSC-C) showed very much the same pattern (p.02, 10.68% V; Figure V-80). Low-coping classes improved more in attitude with very high or very low SI teachers, especially the least stimulating ones; but high-coping classes grew much more negative in attitude with very unsystematic teachers, and slightly so with extremely stimulating ones.

COR-SI also showed a similar interaction with classes' general attitude (SSC-A; p .05, 12.47% V), in relation to SSI change (Figure V-81). The extremes of very high or very low SI interactions affected classes very differently, depending on initial level of general attitude. Very unstimulating teachers' classes improved their school attitude a lot if they had a negative initial outlook on life; but such classes declined in attitude if their general outlook was initially positive.

Teacher and Teacher-By-Pupil Effects on Change in General Attitude

Austin I

Change over the year in general attitude (SSC-A) was linearly related to all three aspects of teaching behavior: KU, p=.00, 14.0% V; SO, p=.01, 7.3% V; SI, p=.01, 11.3% V.), between-class.

The classes of teachers with higher ratings became more positive in general attitude toward life, in this sample. Stimulating teaching showed an additional, curvilinear effect (p.03, 6.5% V). Its positive effect on attitude was chiefly exercised by those teachers who were high on SI. Average or below-average teachers did not have much effect. (Figure V-82). The effect of all three kinds of teaching, furthermore, depended a lot on the classes' initial level of attitude. In all three cases, the effect was greatest in classes that had better than average attitudes to begin with. The effect disappeared or even reversed itself slightly in classes with less positive attitudes. (SO, p.03, 6.33% V, Figure 83; KU, p.04, 5.12% , Figure 84; SI, p.02, 7.39% V, Figure 85).

To begin with, teachers' Kindly-understanding behavior (COR-KU) and systematic organization (COR-SO) both interacted significantly with the SES level of the class. High SES classes (Figure V-86, p .05, 6.93% V) responded best to highly organized teachers while extremely low SES classes improved their attitudes more if the teachers were low on this dimension. The COR-KU interaction (p .05, 6.10% V) showed exactly the same pattern. Figure V-87 shows that high SES classes improved their attitudes more with very kind and understanding teachers, while the opposite was true for the classes that were relatively lowest in SES.

All three teacher dimensions showed a significant interaction with achievement (CTBS). The pattern of all three of these interactions was the same (Figures V-88 through V-90), (SO, p.01, 7.93% V; KU, p.01, 7.97% V; SI, p.02, 7.28% V). Classes high in initial achievement improved their attitudes more with teachers who were relatively high on any of the three dimensions. Classes low in initial achievement, on the other hand, showed little effect from differences in teacher behavior.

Finally, COR-KU interacted with self-esteem (p .05, 9.84% V). Figure V-91 shows that classes with high self-esteem responded especially well to high KU teachers. Classes with low self-esteem responded equally well to high KU teachers, but also improved a lot with teachers who were very low KU.

In the within-class analysis, teachers' systematic organization (COR-SO) interacted with social class (p .01, 8.23% V). Figure V-92 shows that degree of teachers' systematic organization was negatively associated with attitude improvement for lower class students. For upper class students, however, the opposite was true, so that more organized teachers enhanced student attitudes more over the course of the year. Student social class also interacted with teachers' Kindly-Understanding (COR-KU) in this sample (p .01, .62%V). Figure V-93 shows that, contrary to the COR-SO effect, lower class students had more attitude improvement with teachers high on this dimension, while upper class students responded better to low KU teachers.

Figure V-94 shows that teacher KU had an inverse effect on attitude change for students high in self-esteem; the lower the KU score, the more attitude improved. The effect was much reduced among students with low self-esteem, except that very high KU teaching had the most negative effect (Figure V-94, p .03, .65%V).

Austin II

Teacher behavior did not show any of the anticipated effects on general attitude in this sample, either as main effects or in interaction with student characteristics.

Kentucky

In the between-class analysis, all three aspects of teacher behavior showed a positive, linear relationship to improvement in general outlook, over the year (KU, p .03, 8.5% V); SO, p .01, 11.4% B; SI, p .04, 7.3%V). In the case of SI this was modified by the classes' entering attitude (p.05, 7.95% V; Figure V-95). Classes with very low attitudes, at the start, stayed negative with extremely unstimulating teachers but improved somewhat in attitude with other teachers, especially those in the middle range on SI. Classes with a positive initial attitude responded most favorably to extremely stimulating teachers; next best, to very unstimulating teachers; and dropped a bit in attitude with teachers intermediate on SI.

In the within-class analysis, systematic teaching had an effect on students' general outlook that varied with initial level of outlook (Figure V-96; p.03, .81% V). Students with above average attitudes had higher terminal attitudes, the more organized their teacher was. At the other end, students with relatively negative attitudes improved their attitudes more, the less organized their teacher. Exactly the same pattern obtained for stimulating teaching (Figure V-97; p.03, .77% V).

Teacher stimulation maintained the good outlook of students who were positive to begin with; but it had the inverse effect on students with a poor initial outlook (Figure V-98; p.02, .60% V). The effect accelerated with increasing level of student attitude, curvilinearly. The effect of teacher KU was mixed, and not enough to matter, for students with poor beginning attitude.

Teacher and Teacher-By-Pupil Effects on Change in Self-Described General Coping Skill

Austin I

Class coping skill (SSC-C) was positively affected by all three aspects of teaching, in this sample (KU, p.01, 9.2% V; SO, p.01, 10.3% V; SI, p.05, 3.1% V in the between-class analysis). The effects were somewhat curvilinear, operating more strongly in classes that had above average coping scores to begin with. Pre-test achievement levels showed a similar pattern as it modified the effect of teacher organization (Figure V-99, p.03, 4.01% V). Classes low in achievement, at entry, did not change their coping scores much, no matter what kind of teacher they had. Classes that had above average achievement, however, gained more in coping skill, the more organized their teachers were. As has appeared over and over, with many kinds of student outcomes, there appears to be a threshold effect, whereby differences in teaching either have their main impact on above-average classes, and students, or the effect is even opposite for classes and students that are high and low in numerous ways.

Precisely this pattern was also visible where class SES modified the impact of teacher organization on change in coping skill. Classes below the average in SES were not much affected. In classes of higher SES, however, the positive effect of teacher organization was greater, the higher the SES level (Figure V-100, p.01, 7.57% V).

Well organized teachers had a very positive impact on their classes' competence, particularly in high-achieving classes. Within classes, on the other hand, there was a reversal of this relationship for those few students who were either very low or very high on initial achievement. Eighty percent or more of the students were not affected either way. Nonetheless, it is a challenging puzzle to see that students at either extreme, relative to their own class, lost in their coping skill, the more organized the teacher was; whereas, organized teaching proved beneficial to any class' self-rated coping in direct relation to the mean achievement level of that class, when classes were compared. This may reflect a general, positive relationship between students' "absolute" level of achievement and the effect of teacher organization, partially counterbalanced by a small contextual effect whereby those students who rank extremely high or low within any one class tend to become less effective, independent copers if they have organized teachers (Figure V-101; p .03, .64% V).

It may have been the case in this sample at least, that the degree to which the teacher was organized had two facets: 1) it provided a better presentation of the material; but 2) it tended to provide a more difficult challenge for students who were not in step with the material. If teachers tended to adjust their presentation to the class mean, and if class achievement level was a general indicator of a variety of skills, it is understandable that most students in classes high in initial achievement might do better with a well organized presentation.

Among those few individual students who deviated far from the class mean, however, the highest achievers might have felt constricted by presentation geared to the average student in the class, while the lowest achievers might have found it difficult to meet the demands of an orderly procedure that was geared to the average pace.

Such an interpretation may be strengthened by the additional, between-class finding of an interaction between teachers' organized behavior and student SES (see Figure 100). Teachers low on the SO factor had almost no impact on self-rated coping skill, no matter what the level of students' SES. However, as teacher SO scores rose, there were sharp gains in class coping scores as the mean of the classes' SES rose. Those classes with relatively higher SES (the differences were not great, for most classes) were more sensitive and more positively responsive to well organized teaching. Because of the substantial, positive correlation between SES and achievement level, this amounts to replicating the finding that classes which have somewhat higher achievement scores are more sensitive to the degree of systematic, organized behavior the teacher employs.

Austin II

In Austin Year II it was found that, within classes, the students' overall attitude (SSC-A) modified the effect of teacher behavior (COR-SO) on change in the students' self-perceived coping (p .04, .73% V; see Figure V-102). In the middle range of attitude, systematic organized behavior by a teacher made little impact on student coping skill. However, if a student had either an extremely positive or negative attitude, and the teacher was extremely systematic and organized, then the student tended to increase over the year in his/her sense of capacity to cope. It may be that if the student had a negative attitude, accomplishing the very explicit tasks such a teacher presents gave him or her the feeling of doing better and better at school. the If a student had a positive attitude and the teacher presented an explicit ordering of the tasks, such a student might happily follow the set path and feel he or she is succeeding at coping with school. In both cases, the teacher provides a clear structure for the students in the class. This very positive change in self-perceived coping came only in students with extremely positive or negative attitudes, and with the extremely organized teacher.

Between-class, teacher organization had a generally positive but curvilinear effect on gain in coping skill (p.01, 8.0% V). This effect varied with the class mean on SES (Figure V-103, p.02, 11.63% V). A high degree of teacher organization was associated with large gains in coping skill for classes below the average in mean SES. The opposite was true for high SES classes; mean coping score fell sharply with extremely organized teachers.

A very similar pattern was found with KU teacher behavior. A linear, positive effect (p.03, 5.5% V) was modified by class SES level (Figure V-104, p.03, 9.43% V). Teachers high on KU had a very positive effect on class coping skill for low SES classes; but a very negative effect in high SES classes.

Classes with high SES levels did best over the year in coping skills, when their teacher was medium to low on being systematic-organized or kindly-understanding. In fact, in such classes the students changed over the year from positive gain to loss in coping skills as the teaching scores increased. The opposite was true for low socioeconomic classes. They gained over the year in coping skills when the teachers were medium to highly systematic or kindly-understanding. The needs of students from different social class milieus seem to have been different. It is possible that the lower SES classes could not see themselves as getting better at coping unless the structure of school task was very clear to them. They may have found emotional support and a greater sense of competence from accomplishing these structured tasks, with kindly teachers. On the other hand, medium to low amounts of structure and emotional support seem to have worked best for the higher SES classes.

An SI effect (p.02, 7.56% V) depended on the final class assessment of the teacher (HOWCL). Figure V-105 shows that classes with a low opinion of the teacher lost more in coping skill, the more systematic the teacher was. The effect was opposite, though smaller, for classes with a high opinion of their teacher. Classes with very high HOWCL scores gained in coping, the more the teacher was organized.

Kentucky

The only significant difference in teacher effect, between classes, was found in an interaction between initial student evaluation of the teacher (SET) and teachers who were stimulating and inventive (Figure V-106; p .03, 17.42% V). If a class had a high initial evaluation of a teacher, but if the teacher was medium or low in stimulating behavior, the class tended to lose coping skill over the year. The same kind of classes, when placed with highly stimulating teachers, increased in their ability to cope. Conversely, classes that started off with a negative evaluation of the teacher increased slightly in their ability to cope if the teacher was medium or low in stimulating behavior. Highly stimulating teachers produce a decided decrease in sense of ability to cope, in such classes. A stimulating teacher who is disliked might indeed be out of tune with students' reactions and concerns, so the interaction was disturbing to students and distracted them from simply dealing with problems in a straightforward, effective way. It clearly is important to look at other aspects of a teachers' interactions with students, not just his imaginativeness. There are well-known instances in life and literature of teachers who were inventive but uncomfortably strange, egotistical, or unresponsive to students' personal needs. Clearly, other aspects of a teacher's behavior importantly determine whether high stimulating power is welcome or hurtful to students.

In the within-class analysis of the Kentucky sample, teacher behavior produced several differences in student coping scores. Almost identical interaction effects were found for student achievement level, stimulating-inventive teaching, (linear effect, p .03, .63% V; and curvilinear effect, p.04, .50% V), and systematic-organized teaching (p .04, .53% V). High achieving students gained in coping skill with teachers high in these types of behavior. Low achievers reacted in an opposite way, losing coping skill, the more organized their teacher (Figure V-107). Figures V-108 and V-109 illustrate the strongly curvilinear effects of teacher inventiveness. It had a much stronger, positive effect on very high achievers than medium or low inventiveness. Low inventiveness had a very positive effect, however, on the coping skills of very low achievers.

Another teacher effect indicated that if students had high self-esteem, a highly systematic-organized teacher greatly facilitated their ability to cope (p .03, .55% V). The effect of teacher organization was mixed or random, however, for students with medium or low self-esteem (Figure V-110).

The effect of SO teaching also varied with student pretest level on coping skill (Figure V-111, p.03, .57% V). Poor initial copers gained more with an unsystematic teacher while good copers did better, the more systematic their teacher.

An intricate interaction effect was found where the effect of KU teaching on coping score change depended on both the pretest level of coping (SSC-C) and self-rated coping at that time (BRS-SR) (p.03, .98% V). Among students with high initial coping scores who nonetheless rated themselves low on coping, the best gain occurred with low or medium teachers; by far the worst, with extremely high or low teachers. Extremely kind teachers had a positive effect only on good copers who rated themselves average to above average, but not high (Figure V-112). Among average copers (initial SSC-C), those who rated themselves poorly lost ground, the more kindly their teacher, like the low-self-rated good copers. Average copers who rated themselves high, also gained or lost in coping score in a way inverse to their teachers' kindliness. Similarly, poor copers who rated themselves highly lost ground, the more kindly their teacher; although poor copers with low self-ratings were not as much affected in this way. The overall pattern was chiefly an inverse relationship between teacher KU and gain in coping skill among students who rated themselves very high or very low in classroom coping.

The coping skill of students who rated themselves in the middle range was not as much affected by teacher KU.

Teacher and Teacher-By-Pupil Effects on Change in Peer-Rated Academic Coping Skill

Austin II

The peer rating of coping skill was given as a pre-test, only, in Austin I and Kentucky. In Austin II, however, it was also given as a post-test, so change over the year in this characteristic could be used as a criterion of teacher effects. The results discussed here come solely from this sample.

Low SES and low achieving classes tended to become better classroom copers when they had a highly systematic and organized teacher. On the other hand, high SES and high achieving classes tended to become better classroom copers under the guidance of a teacher who was in the middle range of systematic-organized behavior, not at either extreme. Changes in class means on peer-rated coping skill were systematically affected by the degree of systematic-organized behavior the different teachers showed, but this was partially a function of student SES level (p .04, 4.48% V, Figure V-115) and initial achievement (p .03, 5.16% V, Figure V-116).

Within classes, the SES level showed the same kind of effect (p .02, .29% V, Figure V-117). Students below the class mean on SES gained a little in peer-rated coping, the more organized their teacher was; high SES students, conversely, gained more in coping skill, the less organized their teacher.

Extremely systematic-organized teachers affected classes that were low or high in SES or achievement, in opposite ways. In the low SES or low achieving classes the students profited from a coherent system of demands to organize their attention to the classroom. When they got that firm guidance, they apparently acted more appropriately and got better peer-ratings for their classroom coping behavior, at the end. On the other hand, extremely systematic-organized teachers may not have allowed sufficient room for individual initiative. This might have frustrated the high SES, high achieving classes so that these classes became disenchanted, acted that way, and therefore gave one another less favorable ratings by the end. High SES and high achieving classes also lost in coping skill, however, when teachers were extremely disorganized and unsystematic. It seems that when these classes could not make sense of the system of instruction, because little system existed, they behaved somewhat ineffectively and became poorer classroom copers in each others' eyes. A practical implication of these findings may be to see to it that low SES and low achieving classes be given highly systematic instruction, while high SES, high achieving classes be given an instructor who is neither too loose nor too tightly organized.

TABLE V-1

Correlations Between COR Factor Scores and SET (Post) Scores within the Same Year

	Kentucky Correlations	Austin Year 1 Correlations	Austin Year 2 Correlations
	SET	SET	SET
COR KU	.73	.68	.54
COR SO	.68	.54	.45 *
COR SI	.66	.47*	.38 *
COR Pupil	.70	.51	.40*

* probability < .05
No * probability < .01

451

TABLE V-2

VALIDITY DATA FOR
HOW THIS CLASS MAKES ME FEEL (HOWCL)
AUSTIN II (BETWEEN)

Contruct Validity	Correlation
HOWCL x SSI post	.57
SSC-A post	.43
Self-Esteem post	.50
SET post	.49
HOWCL x COR-P	.44

TABLE V-3

EFFECTS OF TEACHER BEHAVIOR AND STUDENT GAINS ON HOW-THIS-CLASS-MAKES-ME-FEEL SCORES

Effect	p	% V	Direction
Teacher Behavior			
All COR	.01	27.1	+
COR-KU	.02	12.6	+
COR-SO	.01	16.9	+
COR-SI	.00	21.3	+
Student Outcome			
Achievement, post	.00	27.6	+
Achievement, partialling COR	.01	11.7	+
Self-esteem, gain	.01	10.4	+
Self-esteem, partialling COR	.01	9.2	+
Attitude -- School, gain	.00	43.2	+
Attitude -- School, partialling COR	.00	37.8	+
Attitude -- General, gain	.00	25.7	+
Attitude -- General, partialling COR	.00	18.6	+
Coping -- Academic gain (BRS-OR)	.00	10.9	+
Coping -- Academic gain, partialling COR	.00	8.8	+
Student Evaluation of Teacher, post	.00	46.6	+
Student Evaluation of Teacher, gain	.00	34.0	+
Student Evaluation of Teacher, partialling COR	.00	23.0	+

TABLE V-4

CONSISTENCY OF TEACHER BEHAVIOR ACROSS THREE DIMENSIONS
(COR-KU, SO, SI)

AUSTIN 1 (N=53)

		N		KU	SO	SI
Top 30% on KU (16)	Completely consistent	10		+	+	+
	Largely consistent	4	3	+	0	+
			1	+	+	0
	Fit mid-range better	2		+	0	0
Middle 40% on KU (21)	Completely consistent	8		0	0	0
	Largely consistent	10	3	0	0	+
			3	0	0	+
			2	0	+	0
			2	0	-	0
			2	0	0	-
	Fit low range better	3		0	-	-
Low 30% on KU (16)	Fit mid-range better	2		-	0	0
	Completely consistent	9		-	-	-
	Largely consistent	3	2	-	-	0
			1	-	0	-
	Highly inconsistent	2	1	-	+	-
			1	-	+	0

Overall consistency: completely consistent 51%; largely consistent 32%; largely consistent but fits adjoining range better 13%; inconsistent 4%.

AUSTIN 2 (N=43)

		N		KU	SO	SI
Top 30% on KU (13)	Completely consistent	6		+	+	+
	Largely consistent	5	3	+	+	0
			2	+	0	+
	Inconsistent	2	1	+	+	-
			1	+	0	-
Middle 40% on KU (17)	Completely consistent	6		0	0	0
	Largely consistent	7	1	0	0	+
			1	0	+	0
			3	0	0	-
			2	0	-	0
	Inconsistent	3	2	0	-	+
			1	0	+	-
	Fit bottom range better	1		0	-	-
Bottom 30% on KU (13)	Fit top range better	1		-	+	+
	Fit middle range better	2		-	0	0
	Highly inconsistent	1		-	0	+
	Largely consistent	4	3	-	-	0
			1	-	0	-
	Completely consistent	5		-	-	-

Overall consistency: completely consistent 40%; largely consistent 37%; largely consistent but fits adjoining range better 7%; inconsistent 16%.

TABLE V-4
Page 2

KENTUCKY (N+27)

		N		KU	SO	SI
Top 30% on KY (8)	Completely consistent	7		+	+	+
	Largely consistent	1		+	+	0
Middle 40% on KU (11)	Completely consistent	7		0	0	0
	Largely consistent	3	2	0	0	+
			1	0	0	-
	Fit bottom range better	1		0	-	-
Bottom 30% on KU (8)	Completely consistent	6		-	-	-
	Largely consistent	1		-	-	0
	Inconsistent	1		-	+	0

Overall consistency: completely consistent 74%; largely consistent 15%; largely consistent but fits adjoining range better 4%; inconsistent 7%.

FIGURE V-1

Y-Axis (Criterion) Ach (CT) Post
X-Axis (Predictor) Ach (CT) Pre
Grouped on COR-SO

Figure Number 5.1 - 9W
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

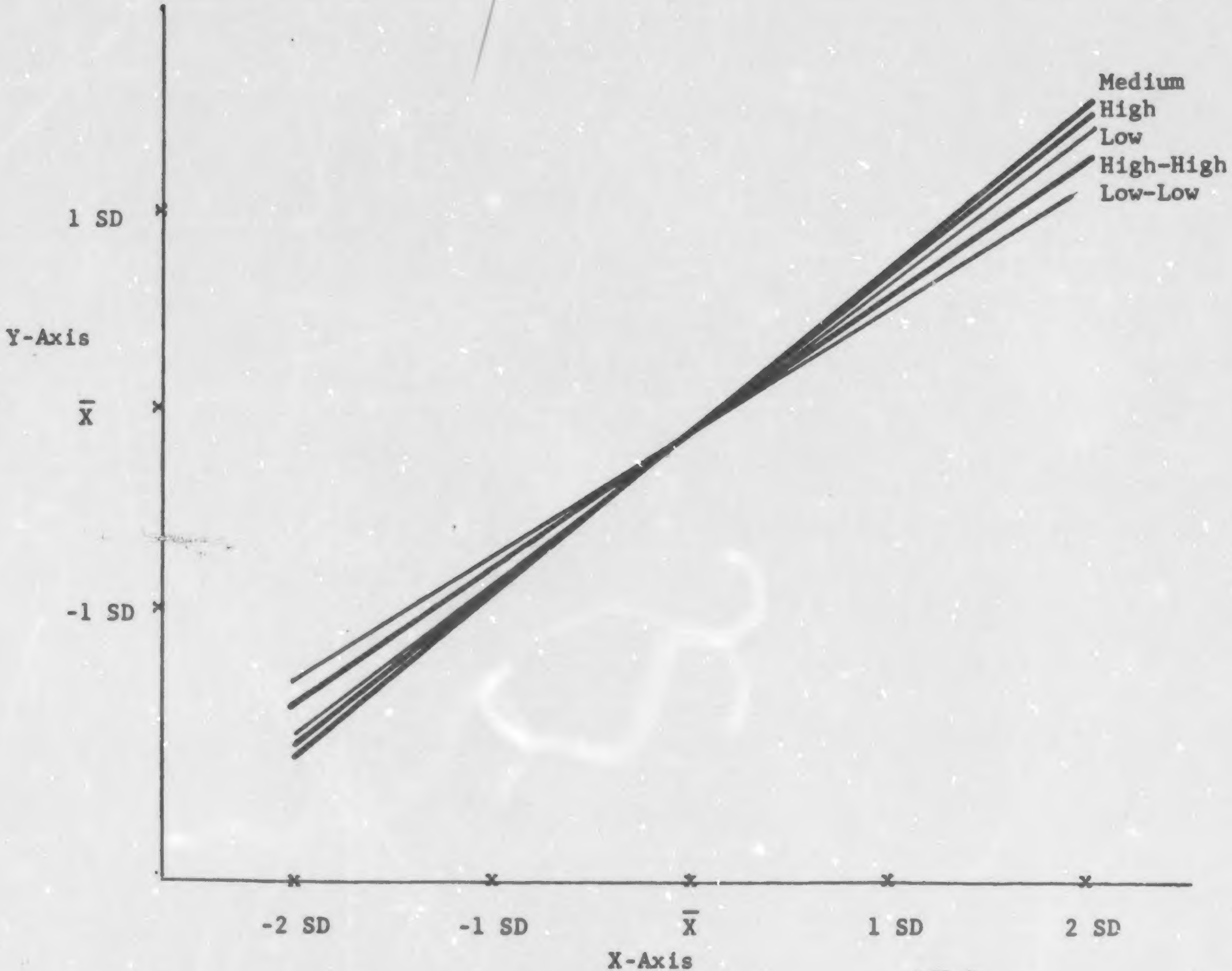
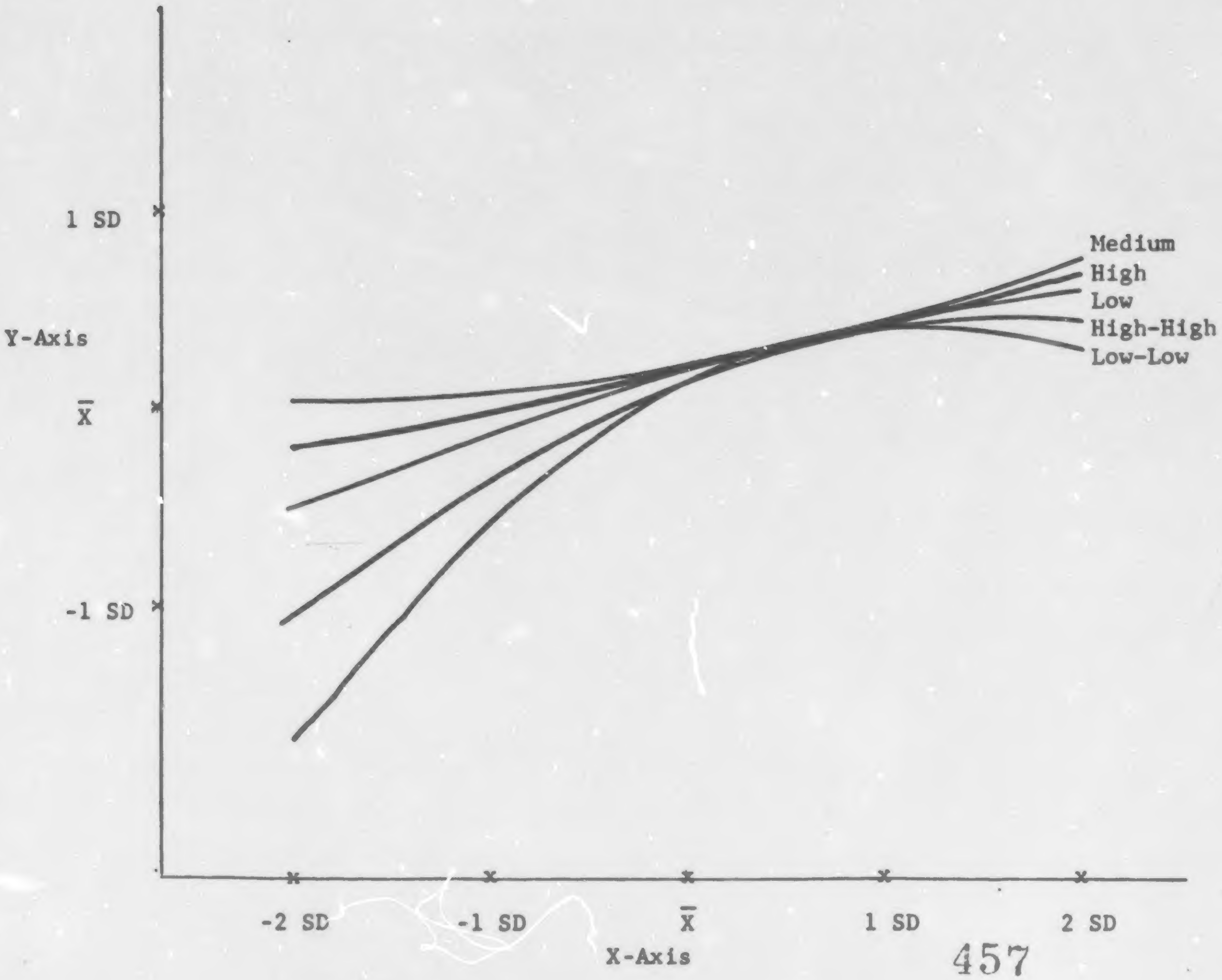


FIGURE V-2

Y-Axis (Criterion) Ach (CT) Post.pre
X-Axis (Predictor) BRS-OR (Cop)
Grouped on COR-SO

Figure Number 5.1 - 8W
Figure ID
Table

Effect Pre-L x Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at ±.5 SD



457

FIGURE V-3

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) SSC-Cop
Grouped on COR-SO

Figure Number 5.1 - 14B
Figure ID
Table

Effect Pupil-L x Teacher-L + Q
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

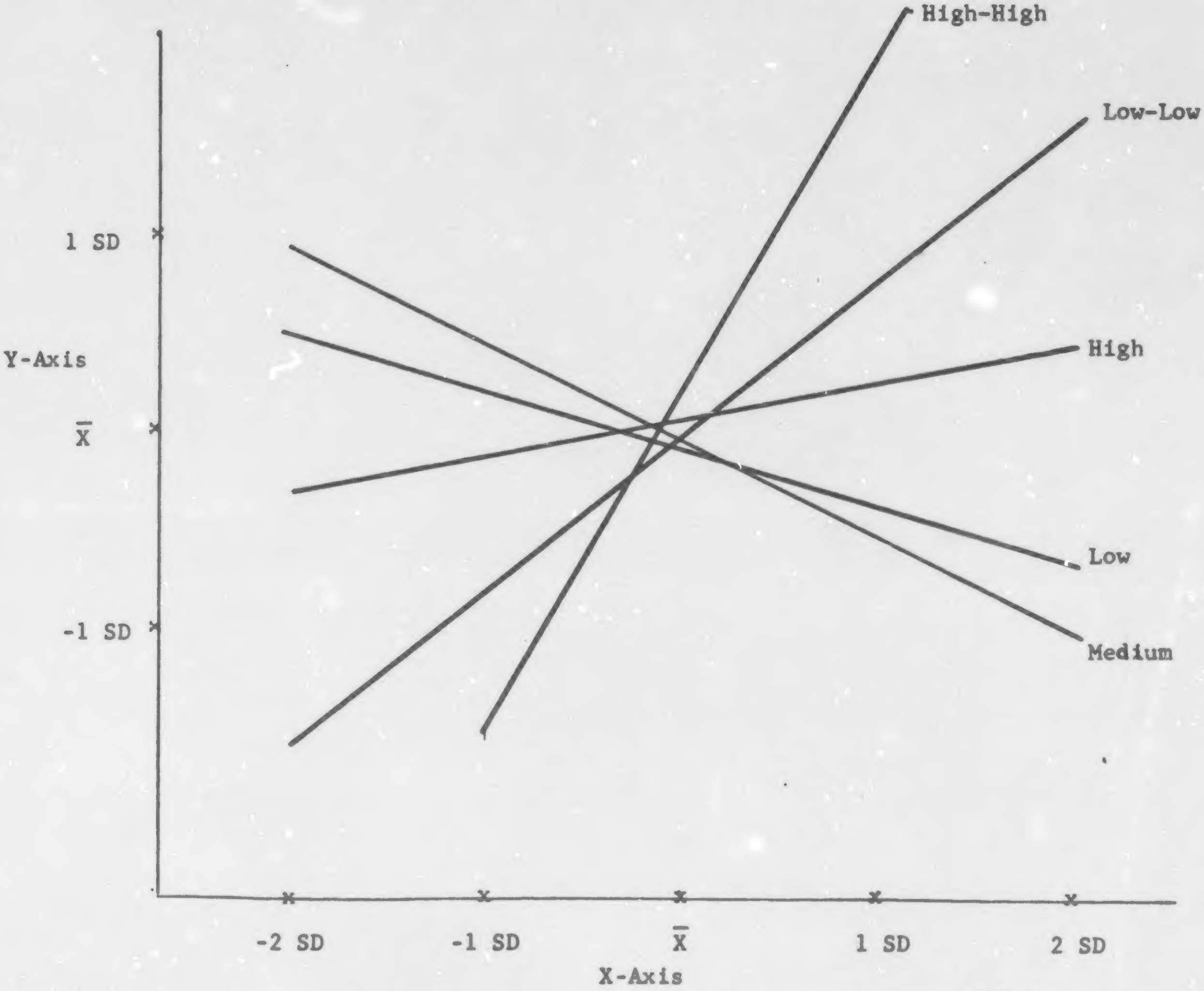


FIGURE V-4

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) COR-KU
Grouped on
Figure Number 4.1 - 6B
Figure ID
Table

Effect Teacher-Q
Year and site Austin 1
Stage 4
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

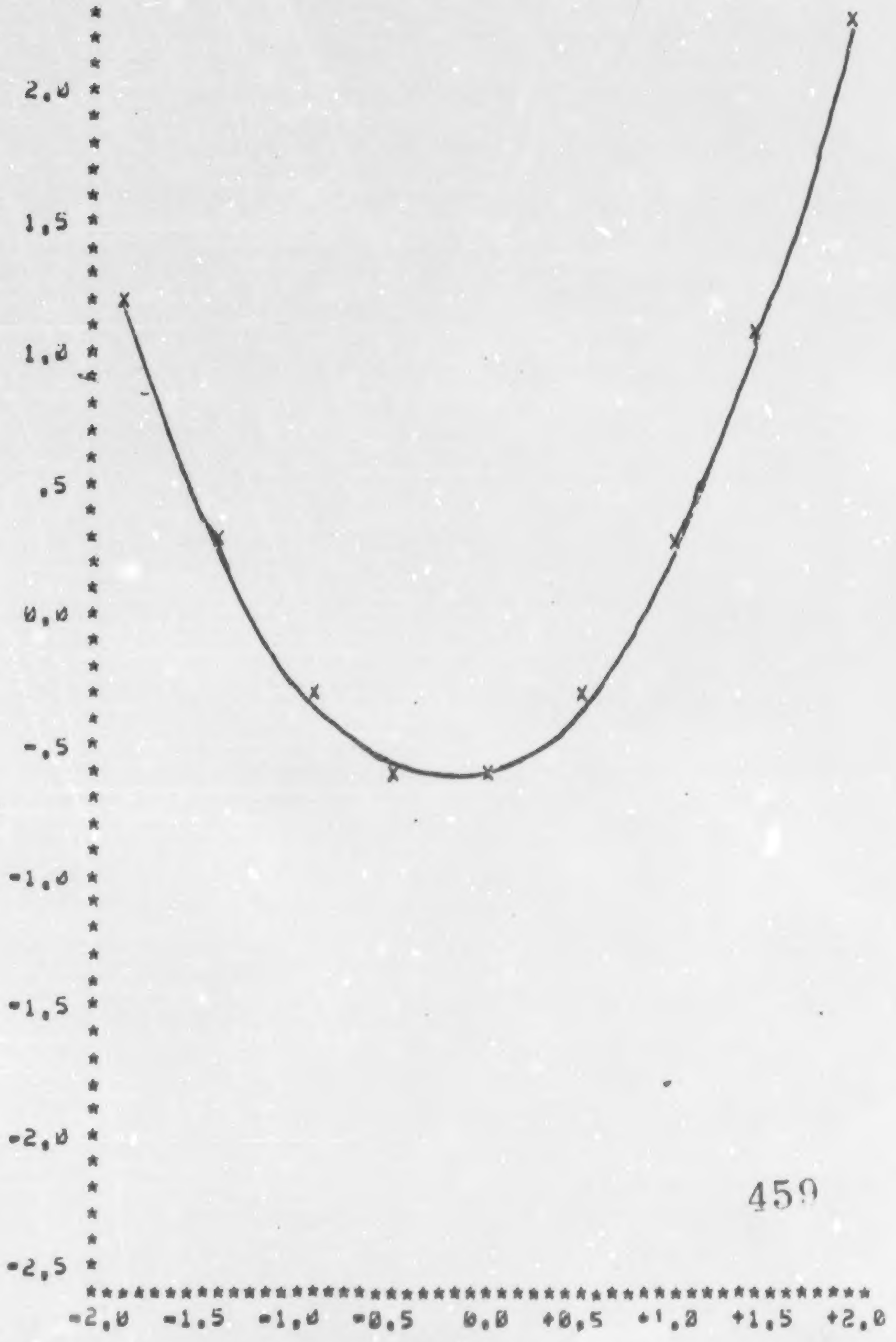
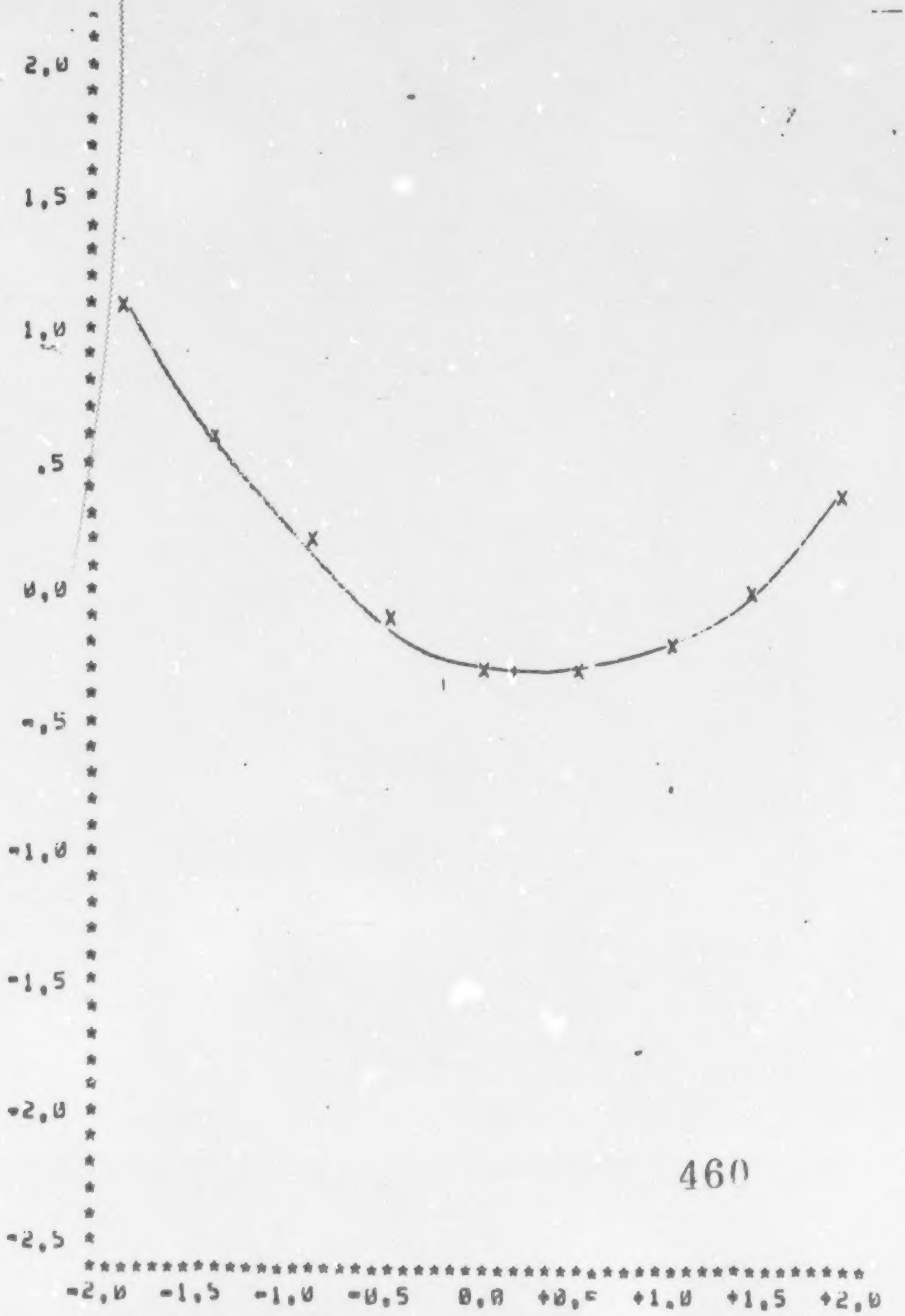


FIGURE V-5

Y-Axis (Criterion) Ach (GMG) Post.pre
X-Axis (Predictor) COR-KU
Grouped on

Figure Number 4.2 - 1B
Figure ID
Table

Effect Teacher-Q
Year and site Austin 2
Stage 4
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



460

FIGURE V-6

Y-Axis (Criterion) Ach (GMG) Post
X-Axis (Predictor) Ach (GMG) Pre
Grouped on COR-KU

Figure Number 5.2 - 6B
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

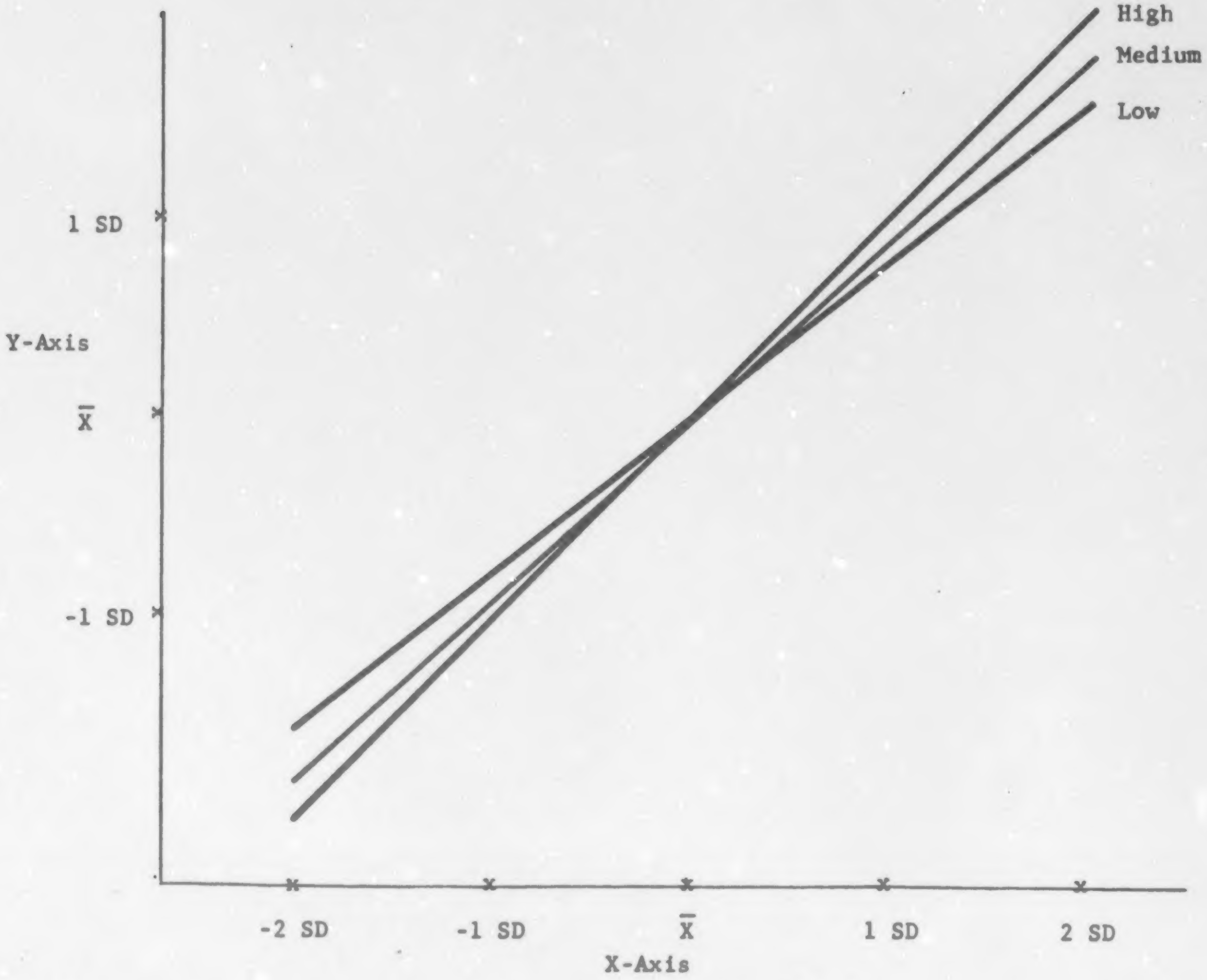
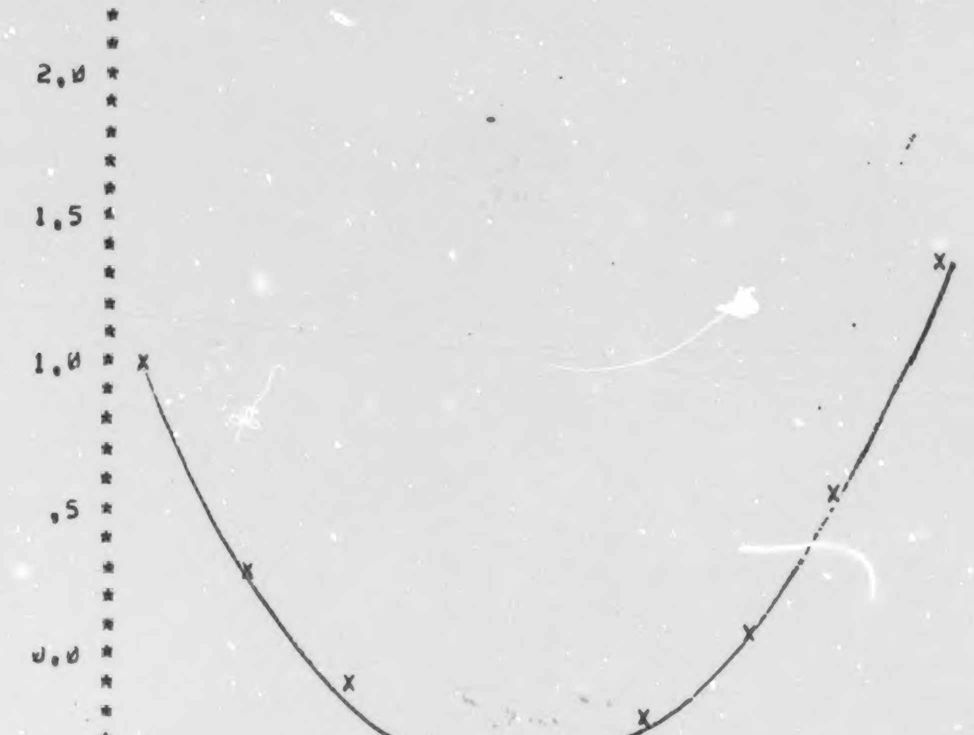


FIGURE V-7

Y-Axis (Criterion) Ach (GMG) Post.pre
X-Axis (Predictor) COR-SO
Grouped on
Effect -Teacher-Q
Year and site Austin 2
Stage 4
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 4.2 - 2B
Figure ID
Table



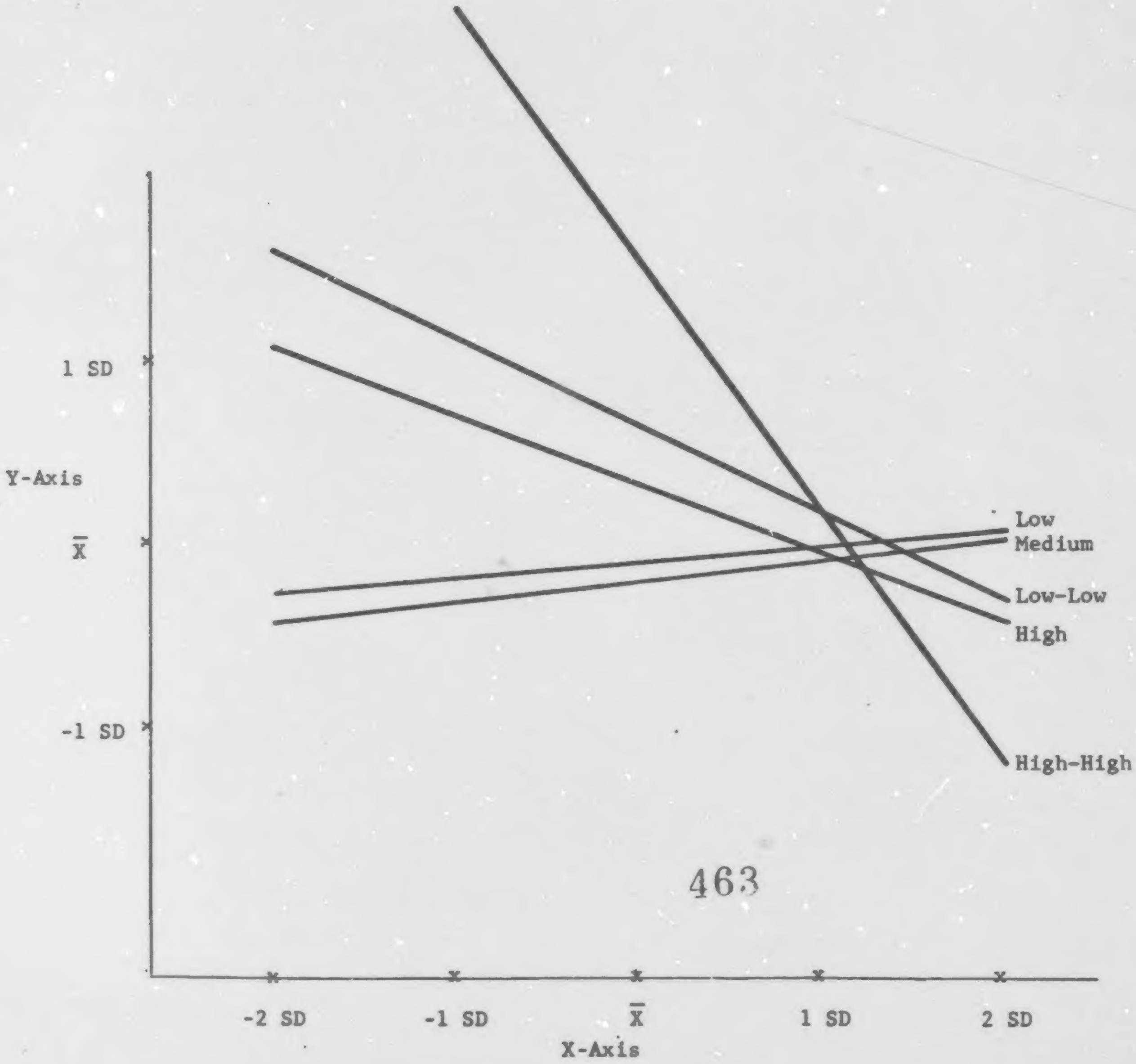
462

FIGURE V-8

Y-Axis (Criterion) Ach (GMG) Post.pre
X-Axis (Predictor) BRS-SR (Cop)
Grouped on COR-KU

Figure Number 5.2 - 8B
Figure ID
Table

Effect Pupil x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



463

FIGURE V-9

Y-Axis (Criterion) Ach (GMG) Post.pre
X-Axis (Predictor) HOW CL
Grouped on COR-KU

Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2 - 7B
Figure ID
Table

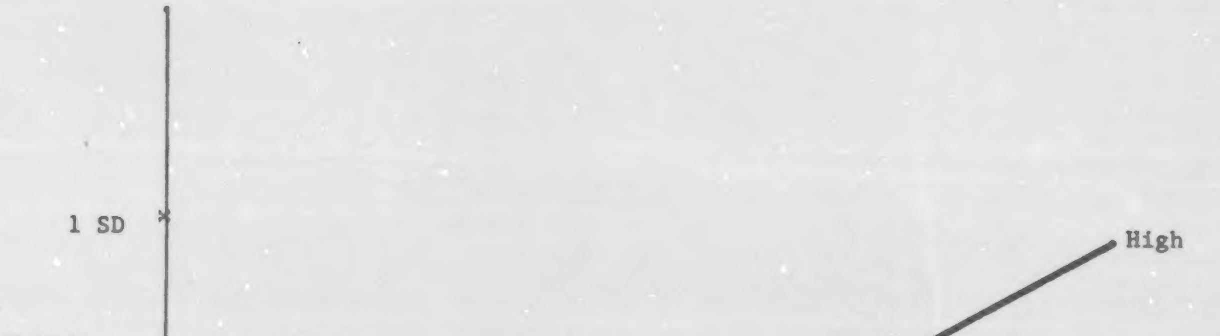


FIGURE V-10

Y-Axis (Criterion) Ach (GMG) Post.pre
X-Axis (Predictor) HOW
Grouped on COR-SO

Figure Number 5.2 - 9B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

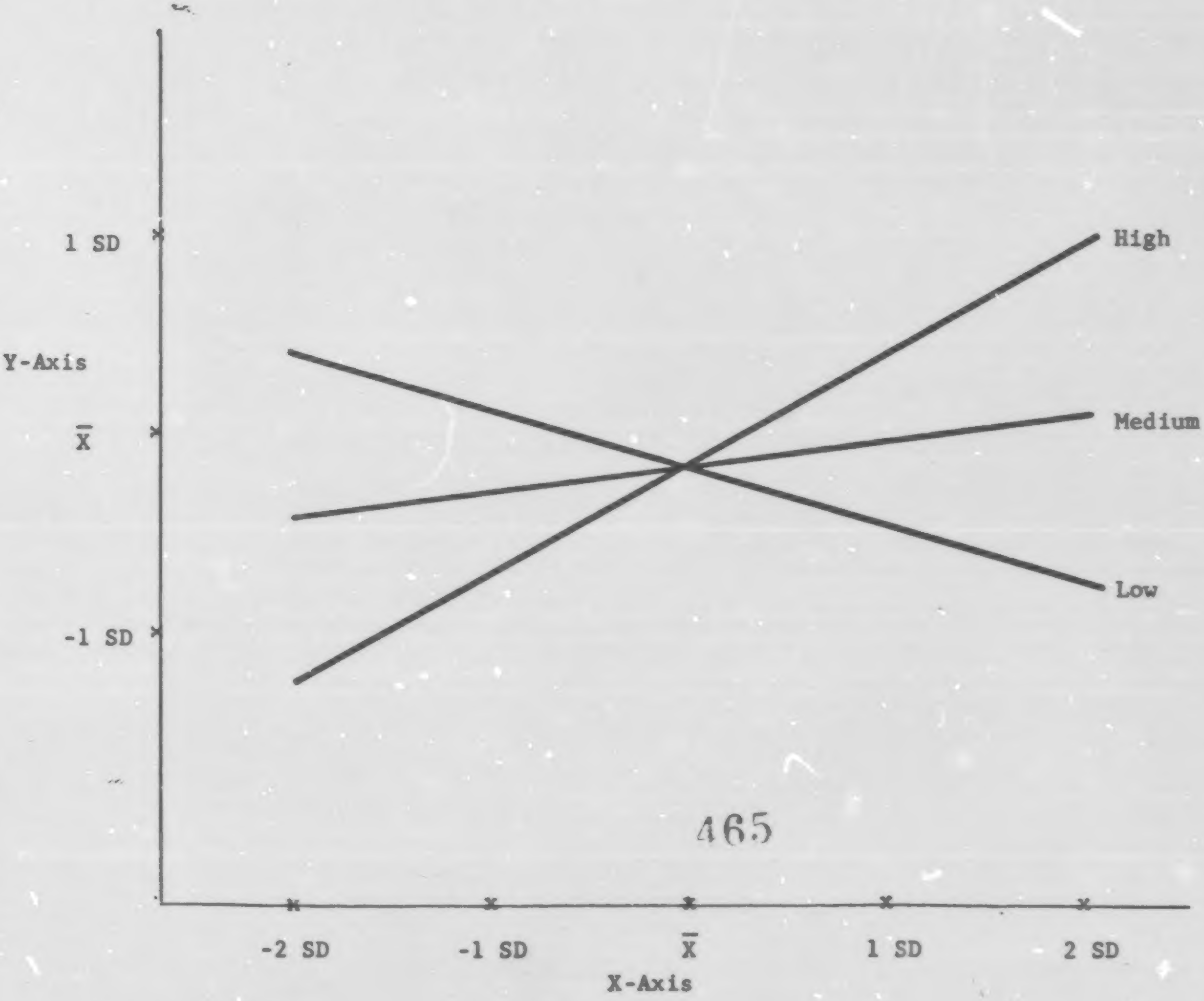
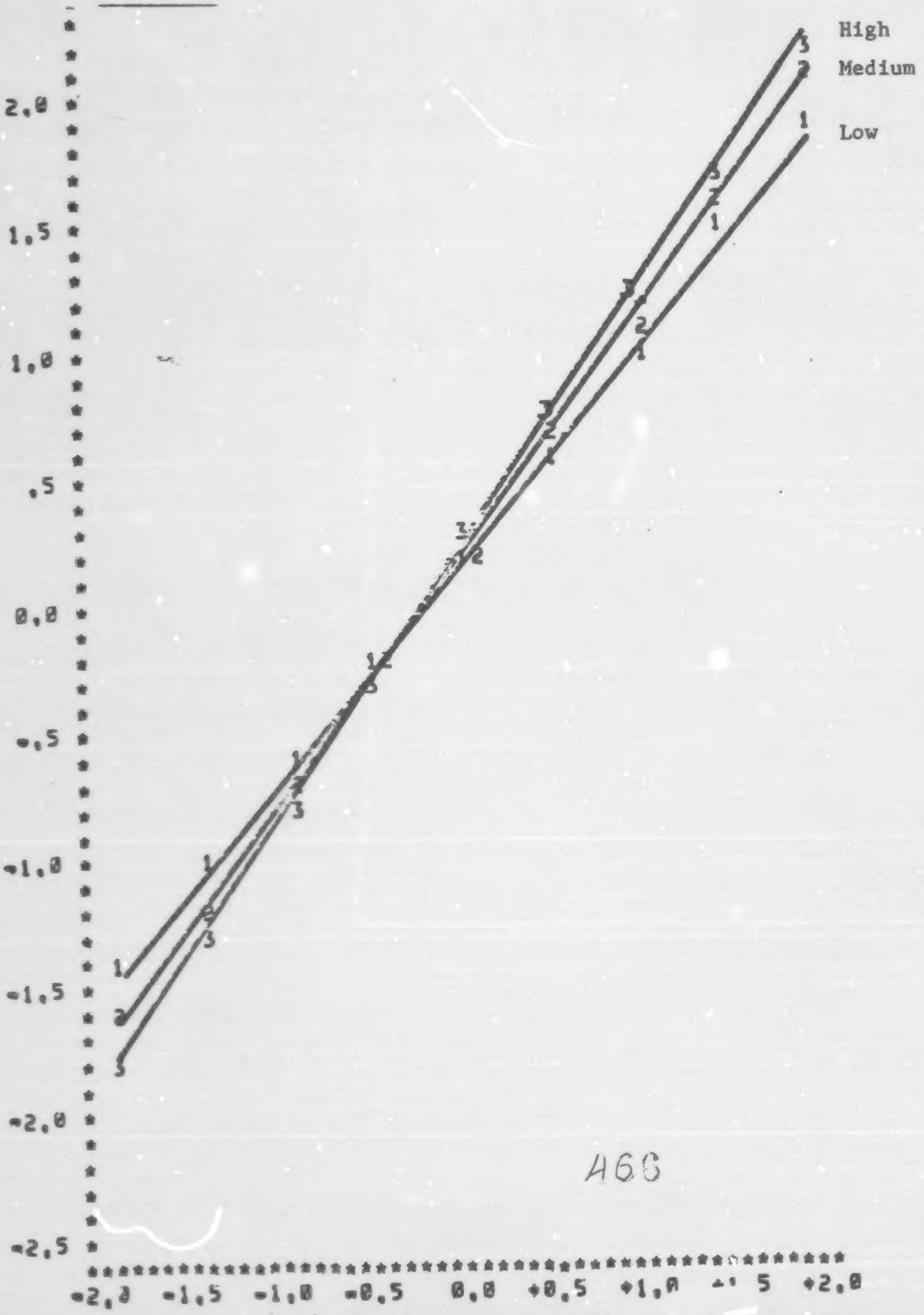


FIGURE V-11

Y-Axis (Criterion) Ach (CT) Post
X-Axis (Predictor) Ach Pre
Grouped on COR-KU

Figure Number K5.1 - 27W
Figure ID
Table

Effect Pre - L x Teacher - L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at



466

FIGURE V-12

Y-Axis (Criterion) Ach (CT) Post
X-Axis (Predictor) Ach (CT) Pre
Grouped on COR-SO
Figure Number K5.1 - 17W
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

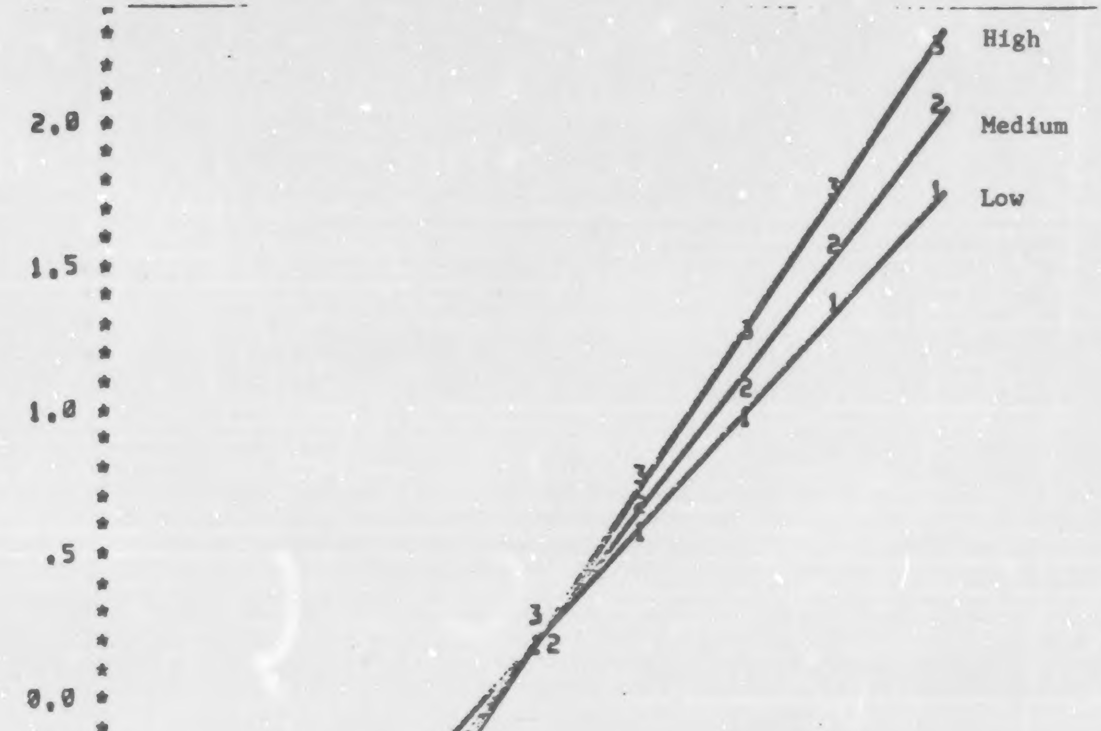


FIGURE V-13

Y-Axis (Criterion) Ach (CT) Post
X-Axis (Predictor) Ach Pre
Grouped on COR-SI
Figure Number K5.1 - 28W
Figure ID
Table

Effect Pre - L x Teacher - Q
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

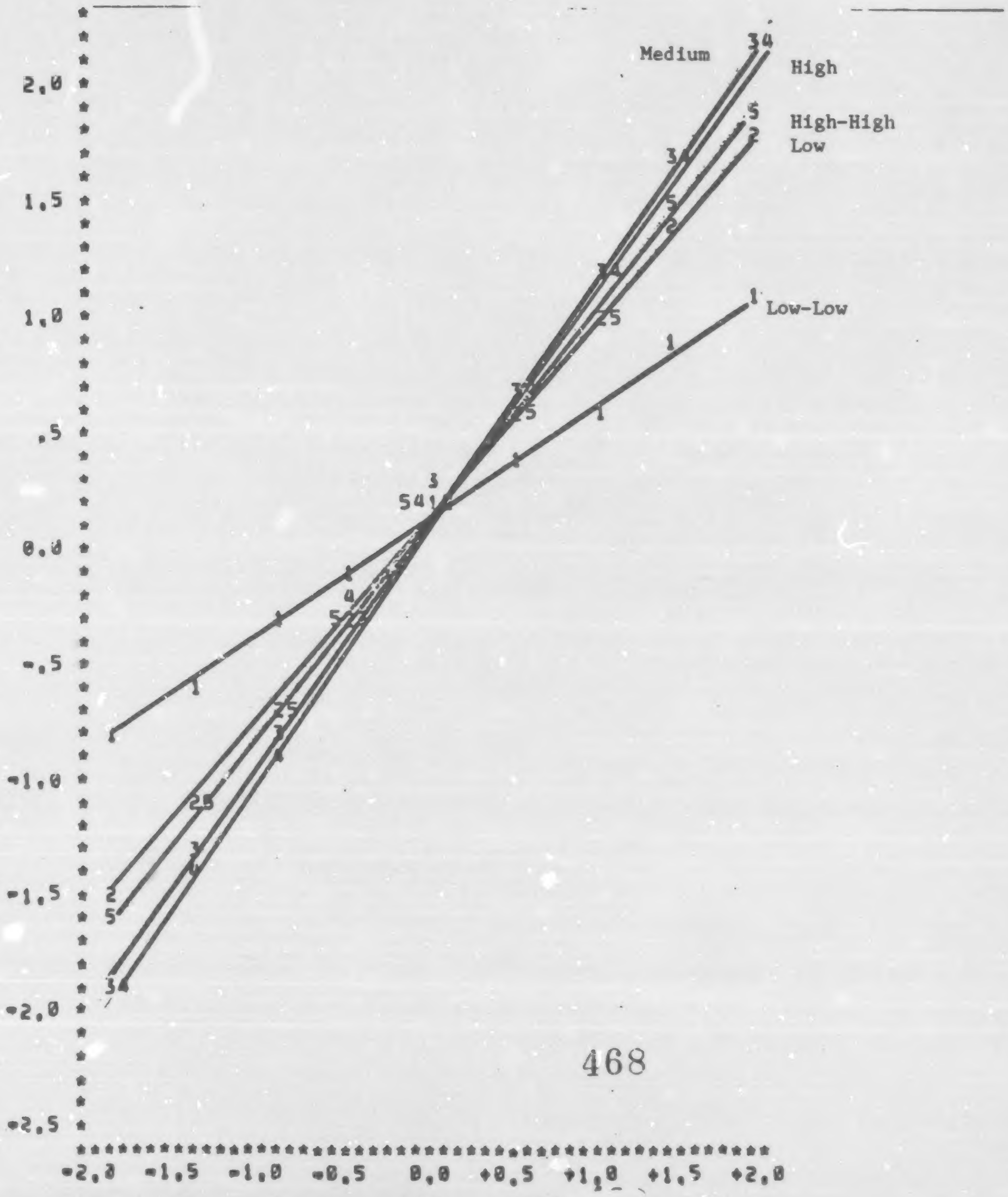


FIGURE V-14

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) SSC-A Pre
Grouped on COR-SI

Figure Number K5.1 - 21W
Figure ID
Table

Effect Pre - L x Pupil - L x Teacher - L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at - 1 SD

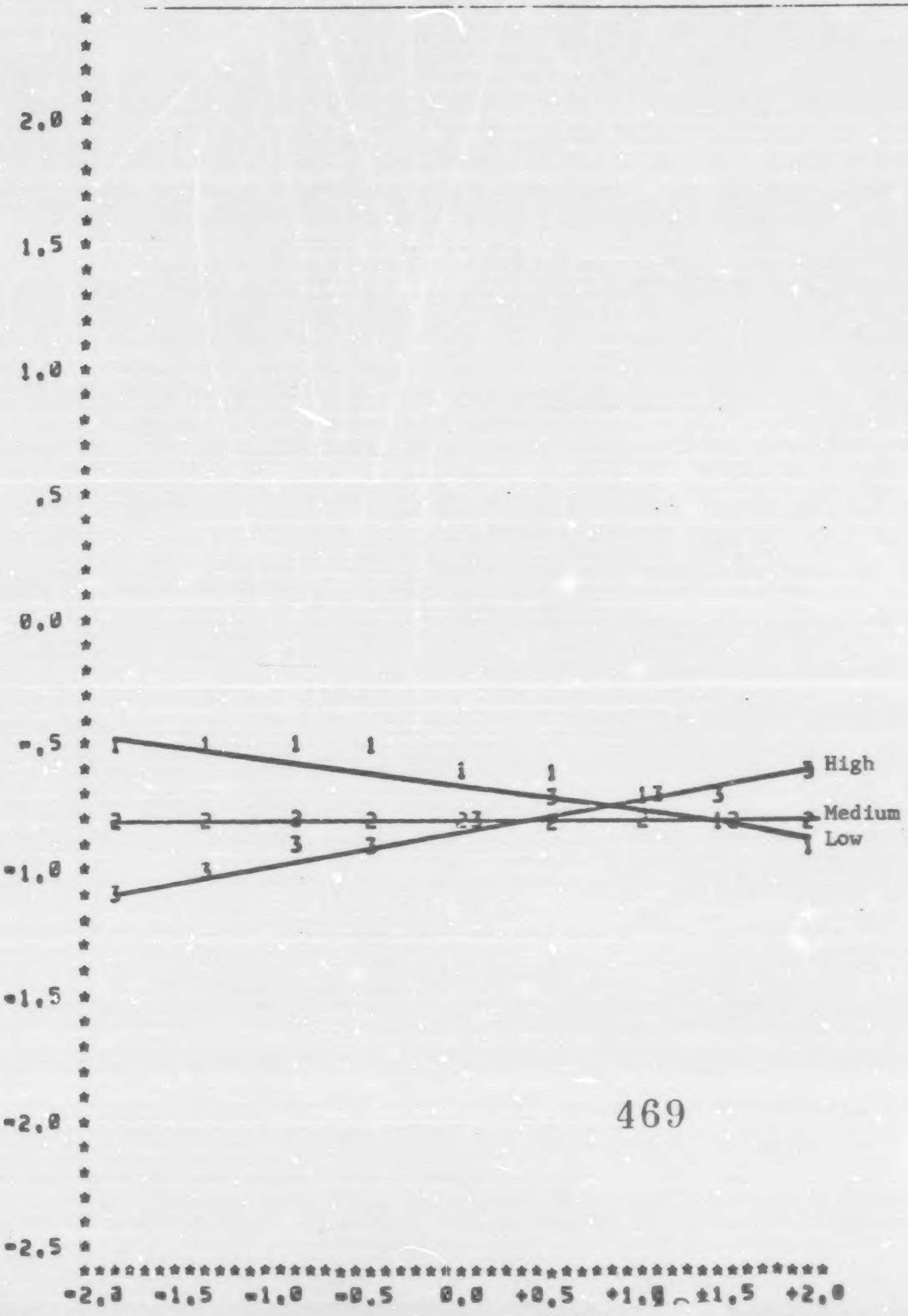
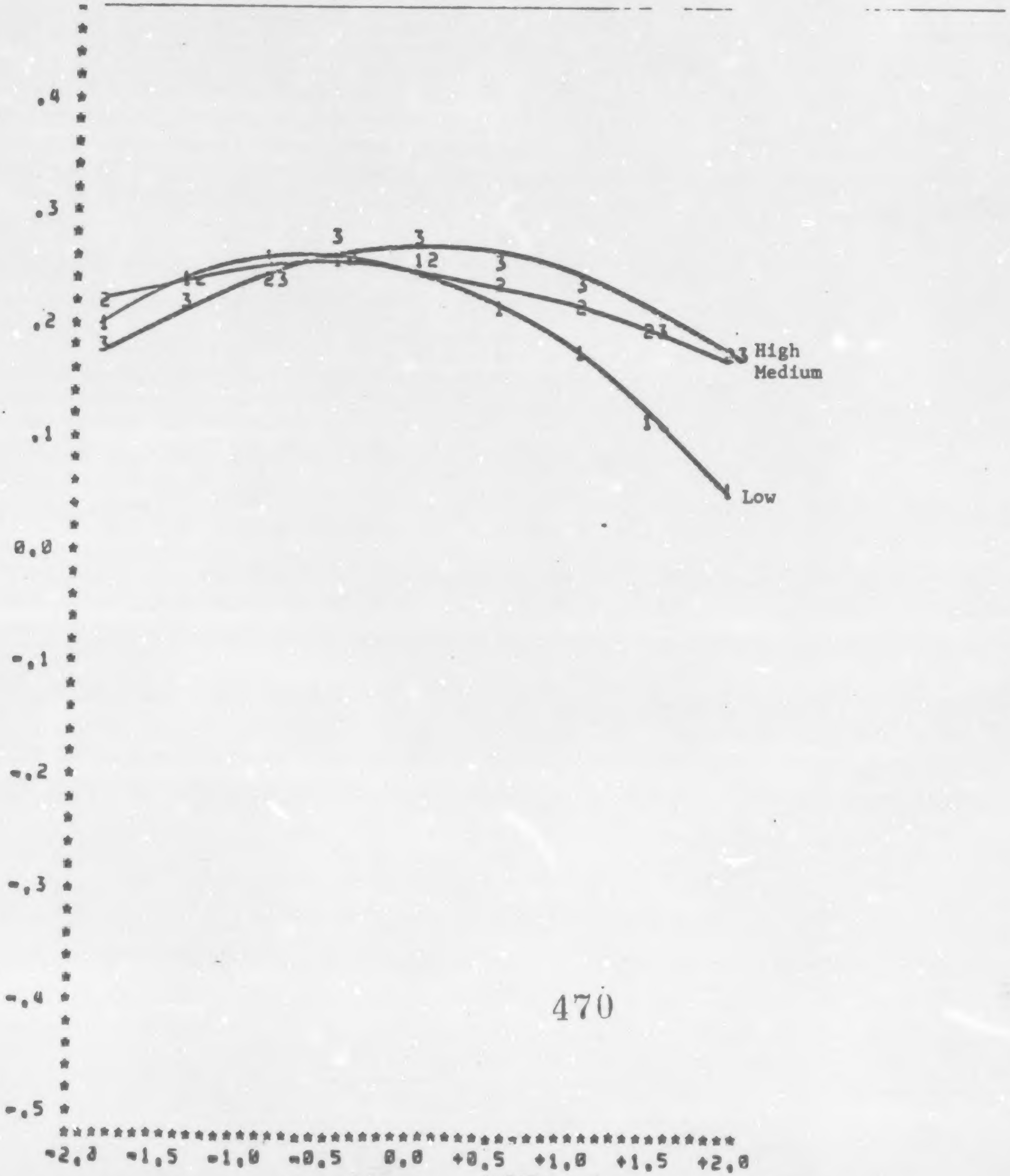


FIGURE V-15

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) SSC-A Pre
Grouped on COR-SI

Effect Pre -L x Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; ACH Pre Mean

Figure Number K5.1 - 22W
Figure ID
Table



470

FIGURE V-16

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) SSC-A Pre
Grouped on COR-SI

Figure Number K5.1 - 20W
Figure ID
Table

Effect Pre - L x Pupil - L x Teacher - L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; ACH Pre + 1 SD

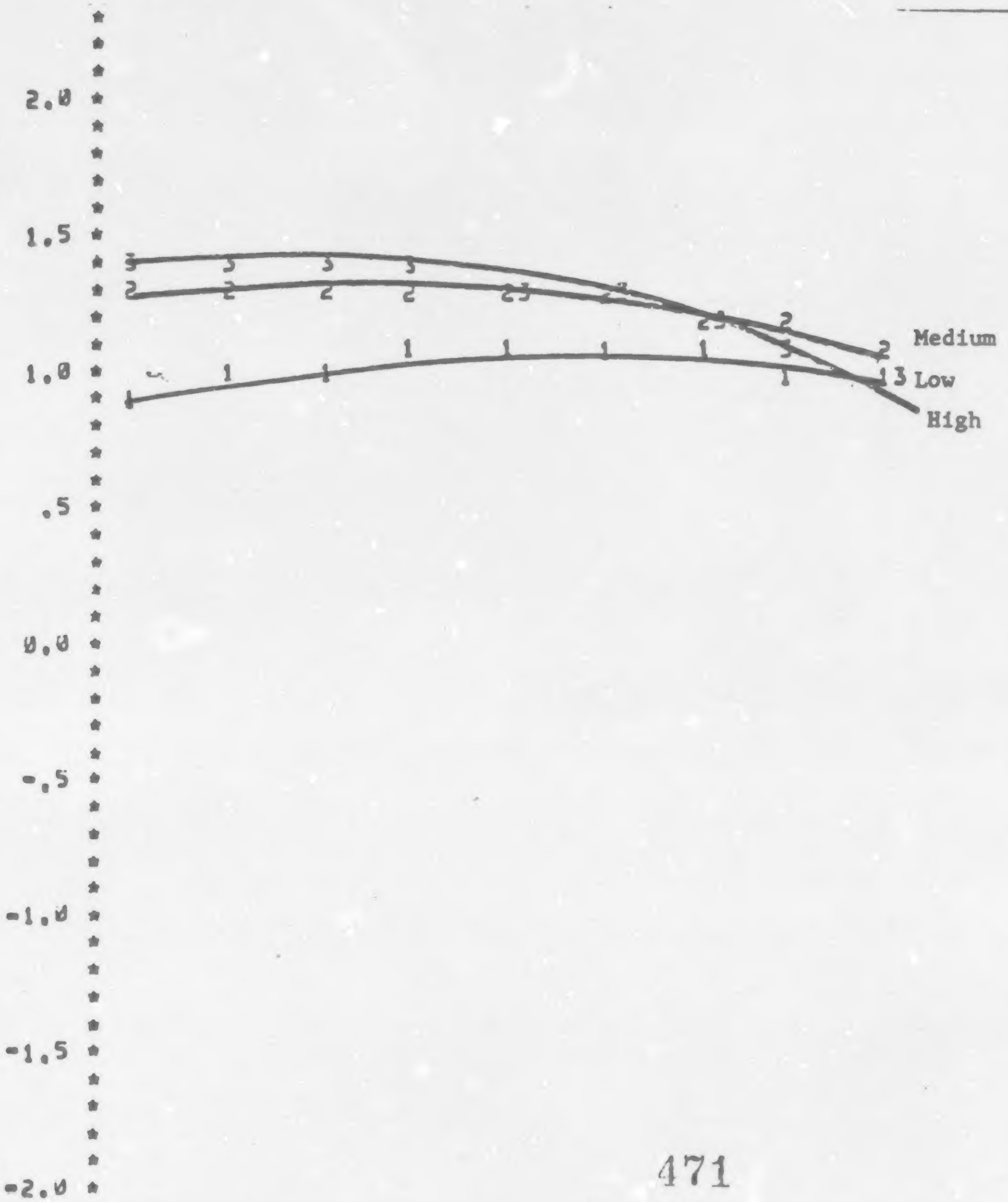
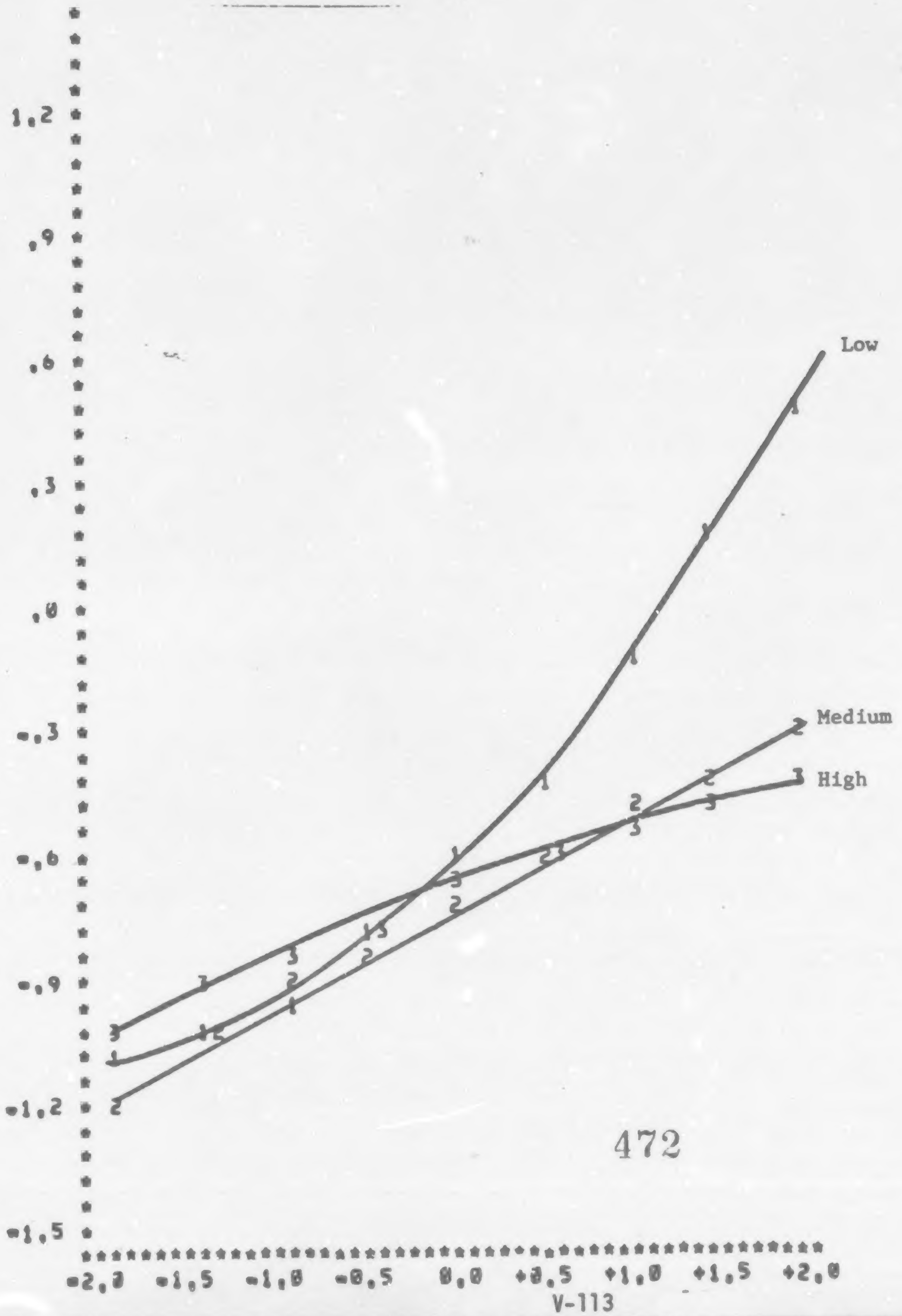


FIGURE V-17

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) BRS-SR
Grouped on COR-SI

Figure Number K5.1 - 18W
Figure ID
Table

Effect Pre x Pupil x Teacher (all quad.)
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; ACH Pre - 1 SD

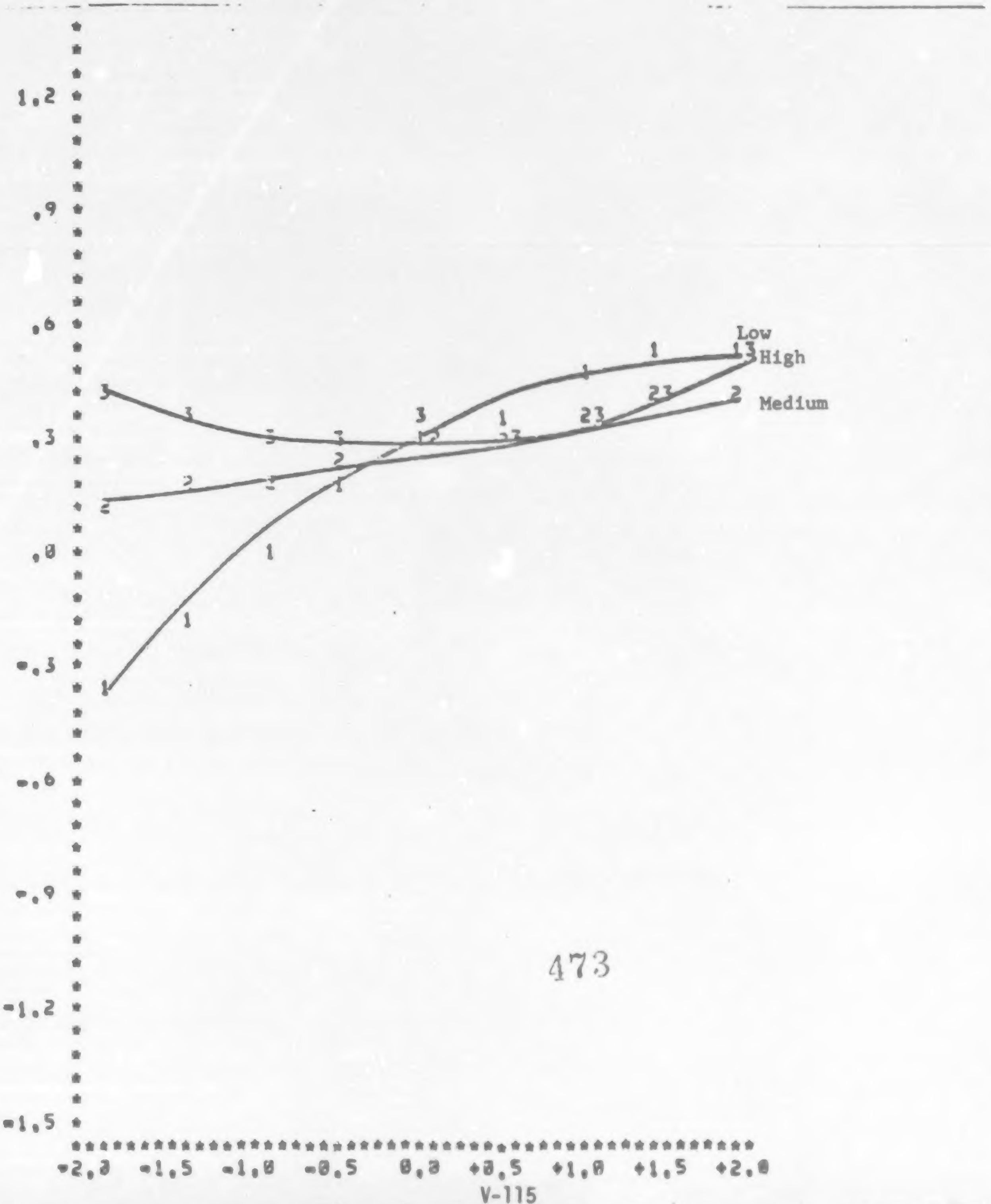


472

FIGURE V-18

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) BRS-SR
Grouped on COR-SI
Effect Pre x Pupil x Teacher (all quad.)
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; ACH Pre Mean

Figure Number K5.1 - 19W
Figure ID
Table



473

FIGURE V-19

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) BRS-SR
Grouped on COR-SI

Figure Number K5.1 - 23W
Figure ID
Table

Effect Pre x Pupil x Teacher (all quad.)
Year and site Kentucky I
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; ACH Pre + 1 SD

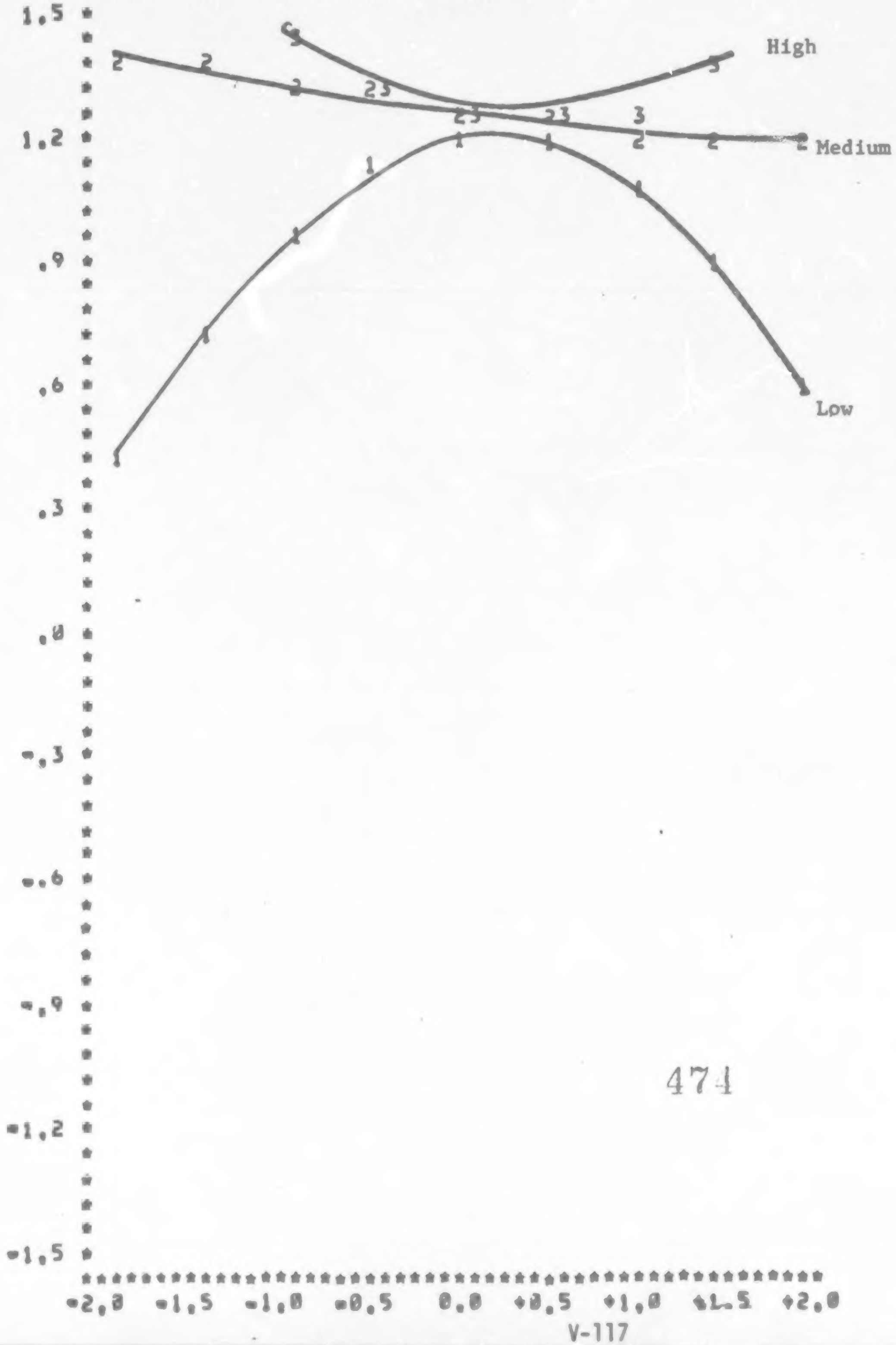


FIGURE V-20

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) Self-esteem
Grouped on COR-SO
Figure Number K5.1 - 16W
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

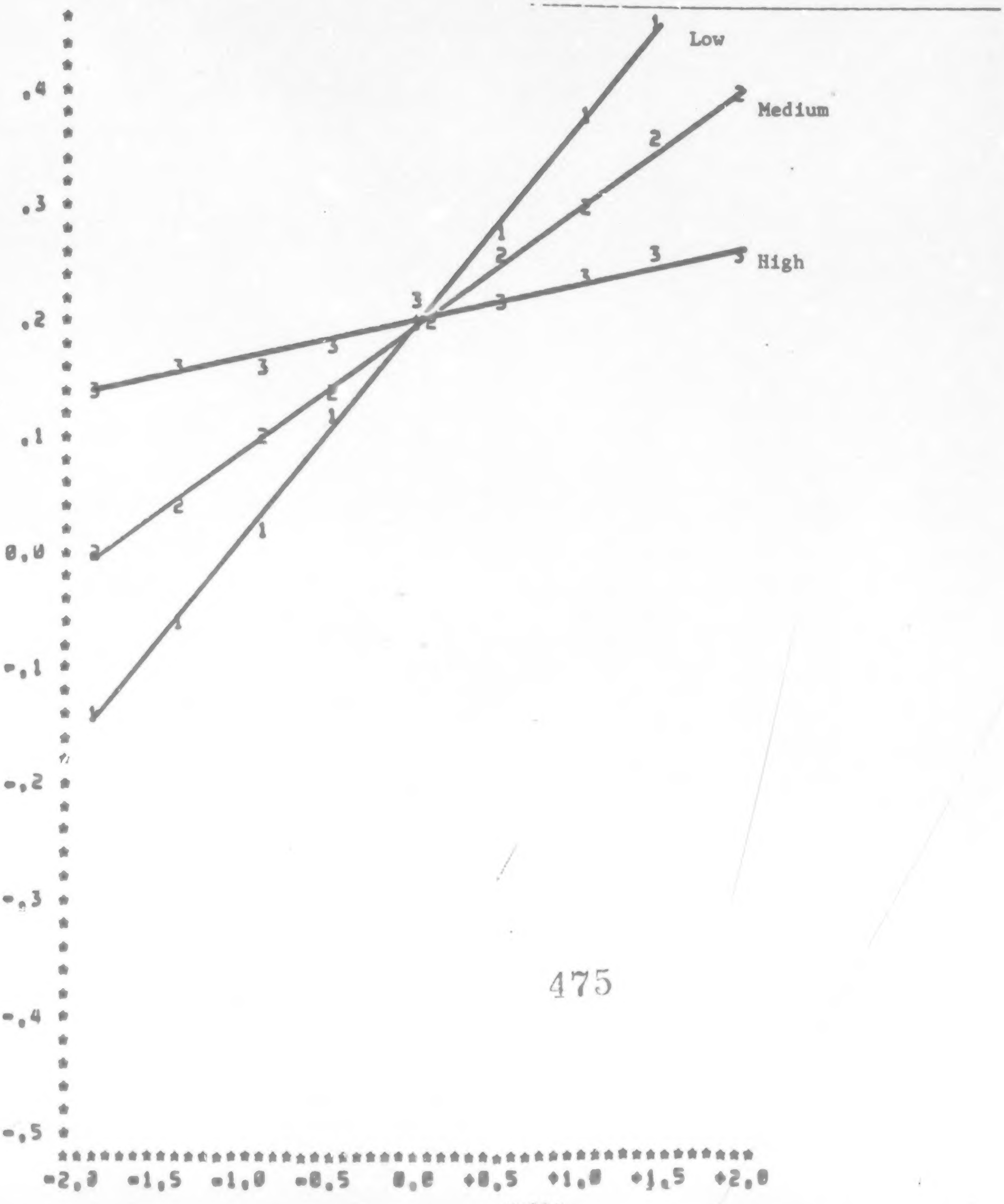


FIGURE V-21

Y-Axis (Criterion) Ach (CT) Post
X-Axis (Predictor) BRS-SR
Grouped on COR - KU

Figure Number K5.1 - 24W
Figure ID
Table

Effect Pupil x Teacher (L+Q)
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

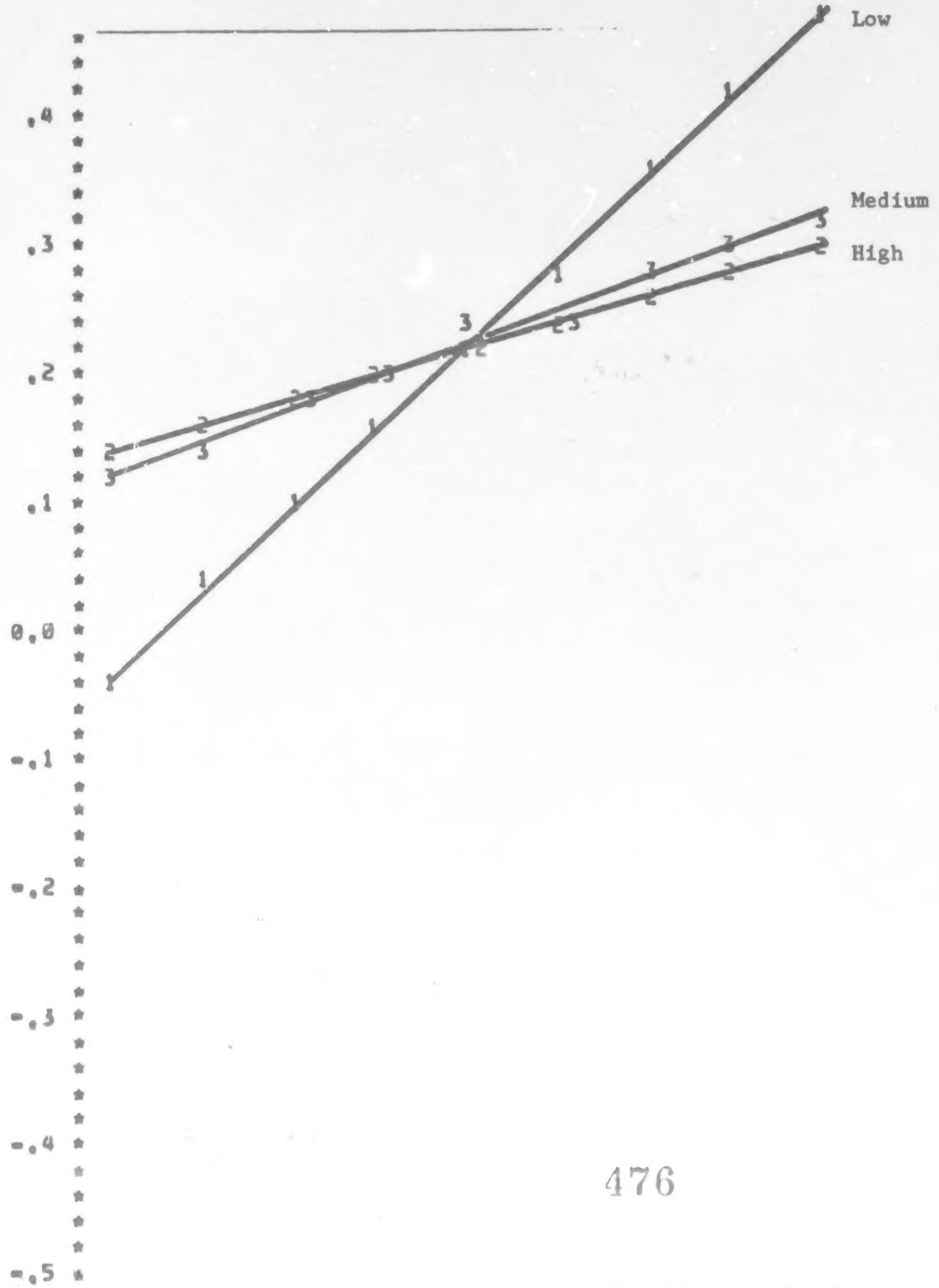
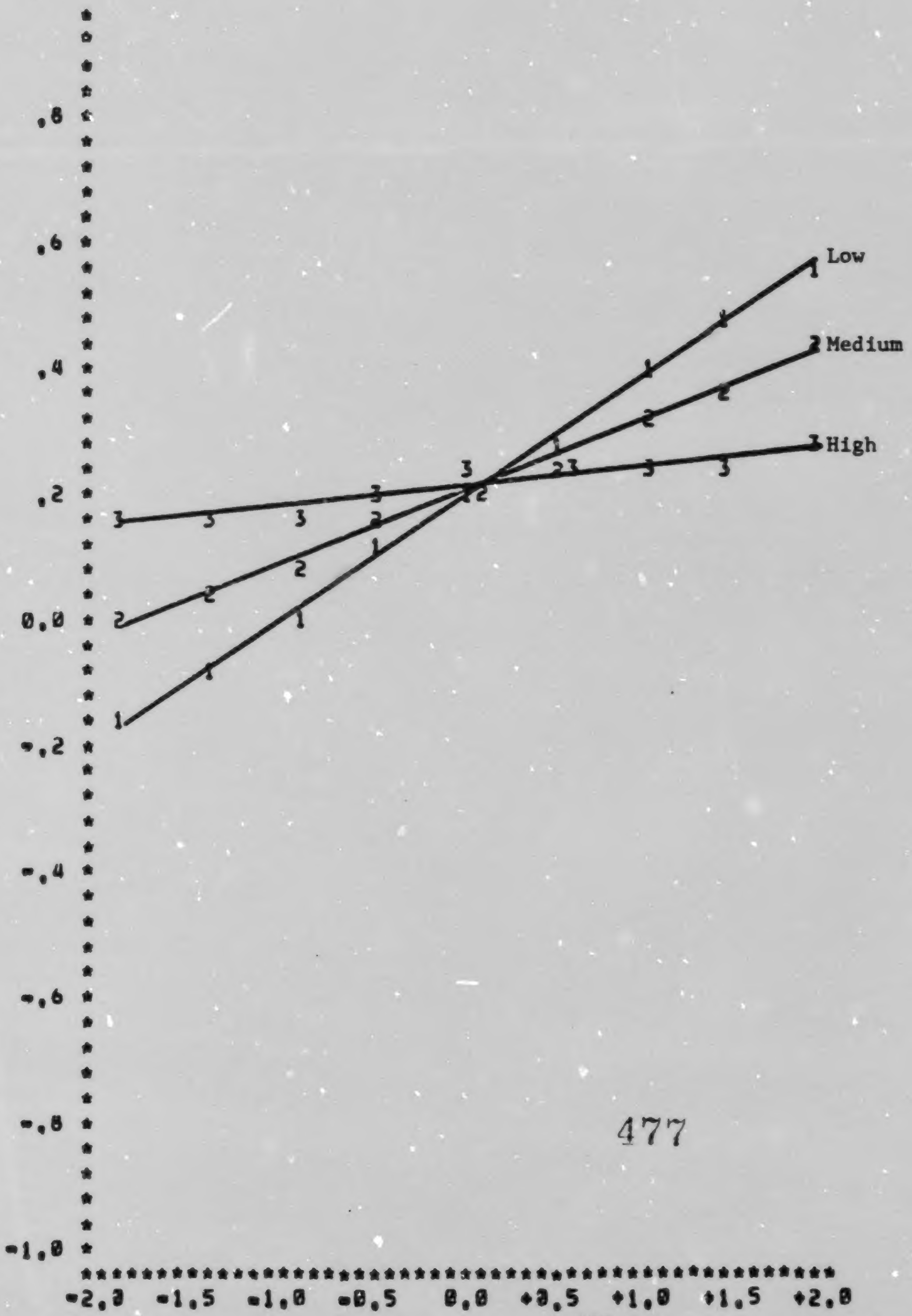


FIGURE V-22

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) Self-esteem (P-H) Pre
Grouped on COR-KU

Figure Number K5.1 - 26W
Figure ID
Table

Effect Pupil - L x Teacher - L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at



477

FIGURE V-23

Y-Axis (Criterion) Ach (CT) Post.Pre
X-Axis (Predictor) Self-esteem (P-H) Pre
Grouped on COR-KU
Effect Pupil - L x Teacher - Q
Year and site Kentucky I
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number K5.1 - 25W
Figure ID
Table

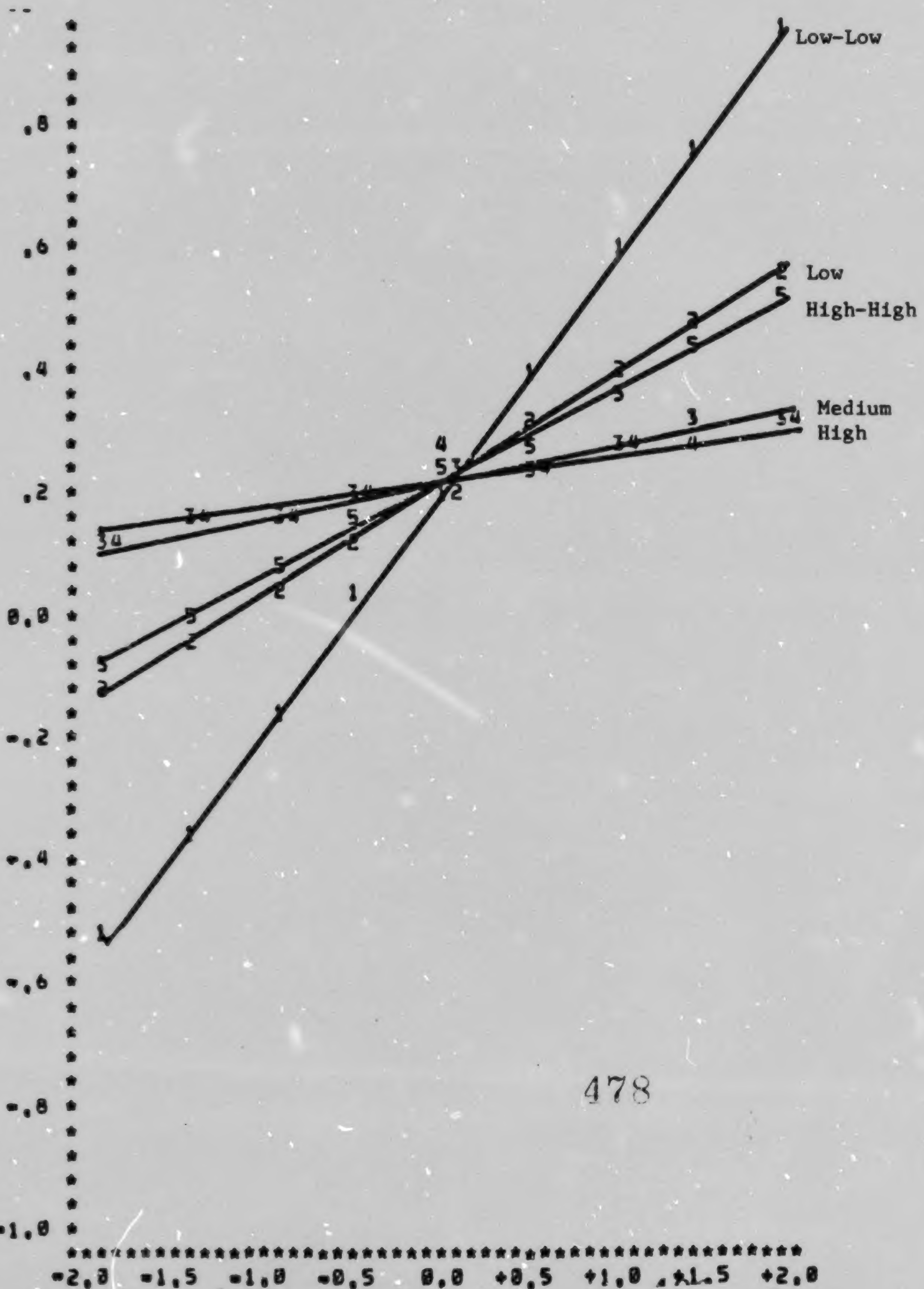


FIGURE V-24

Y-Axis (Criterion) Self-est (P-H) Post
X-Axis (Predictor) Self-est (P-H) Pre
Grouped on COR-SO

Figure Number 5.1 - 11W
Figure ID
Table

Effect Pre-L x Teacher-L + Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

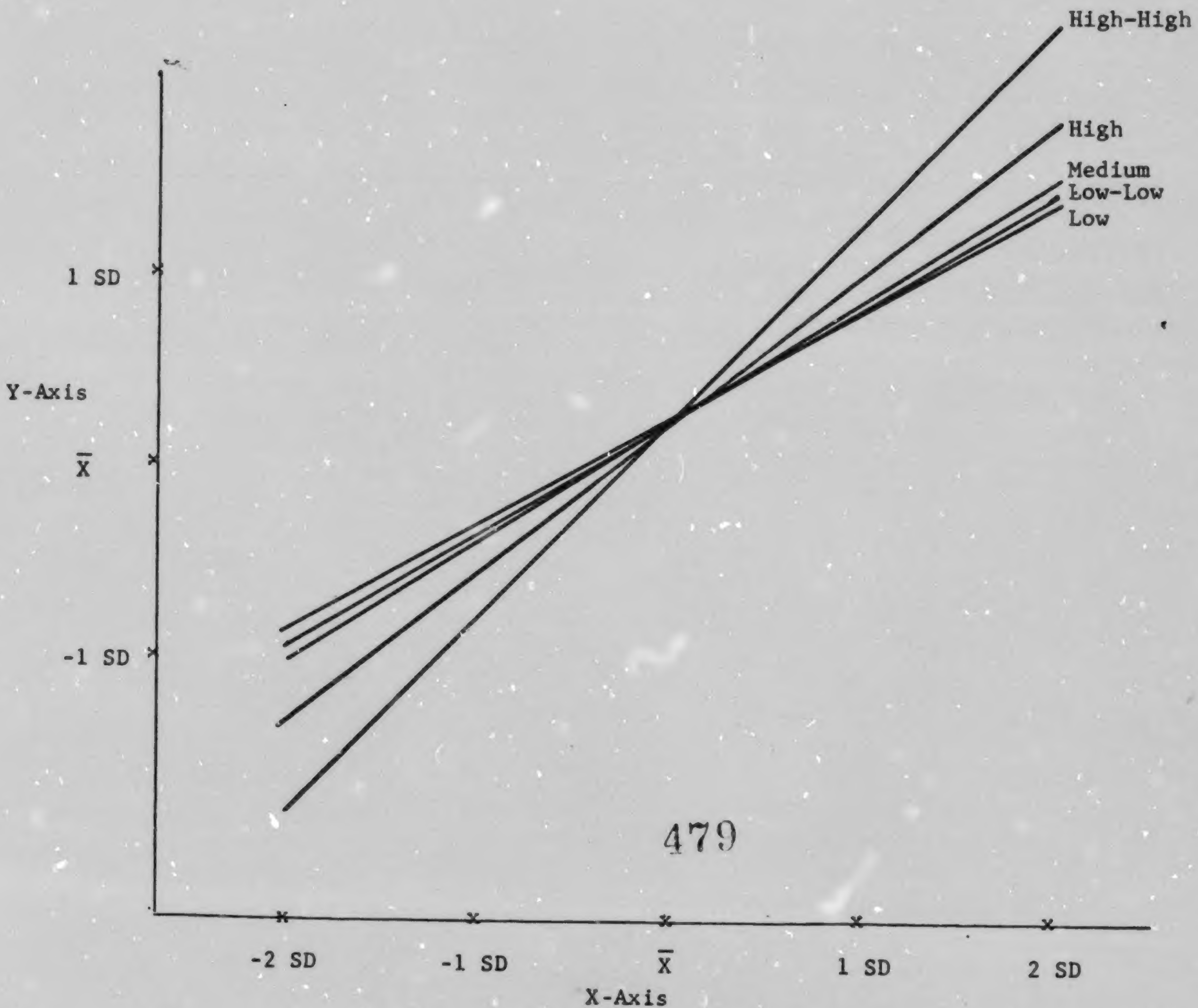
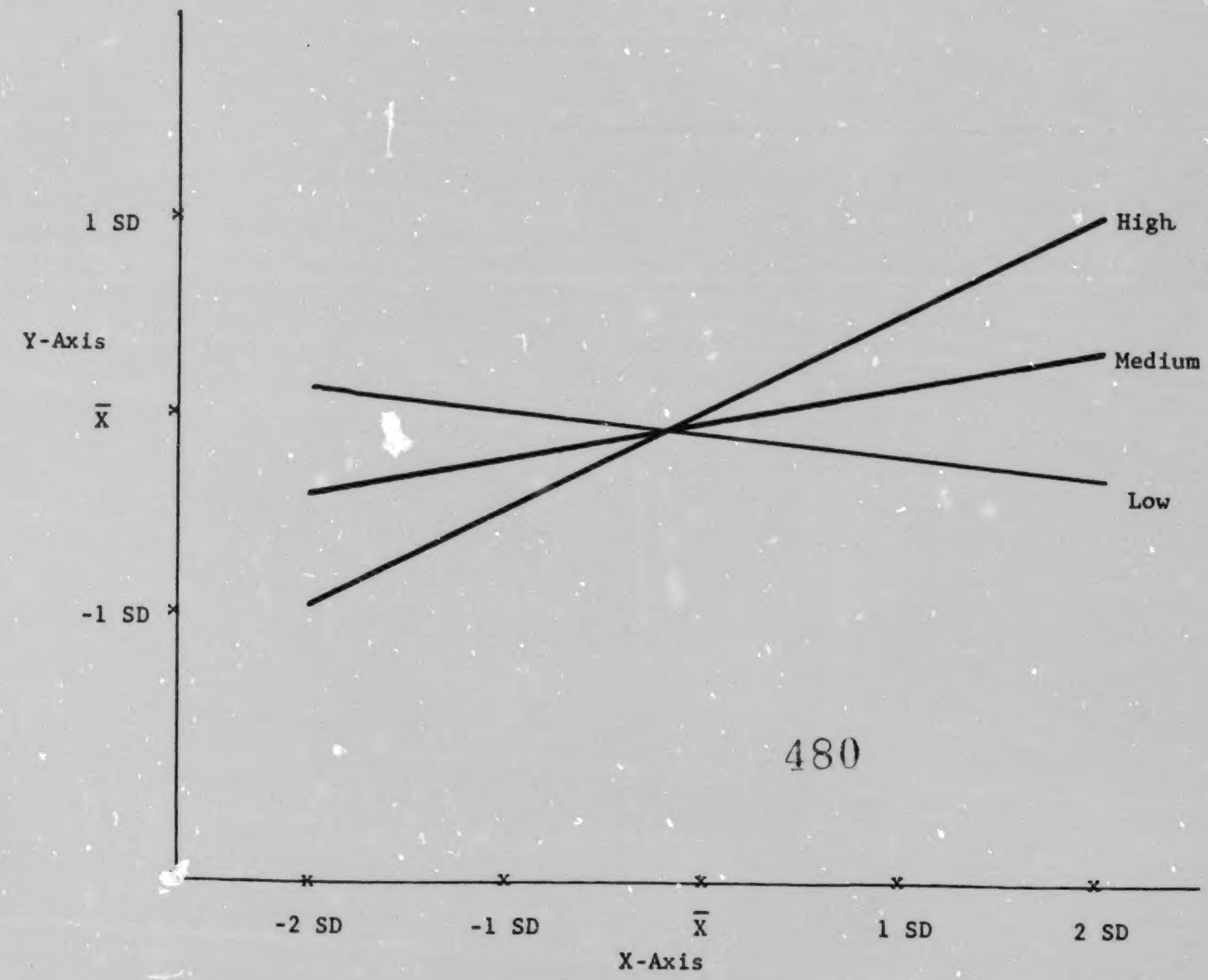


FIGURE V-25

Y-Axis (Criterion) Self-est (P-H) Post.Pre
X-Axis (Predictor) SSI- Att
Grouped on COR-SO

Figure Number 5.1 - 15B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



480

FIGURE V-26

Y-Axis (Criterion) Self-est (P-H) Post. pre
X-Axis (Predictor) SSI- Att
Grouped on COR-SO

Figure Number 5.1 - 10W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

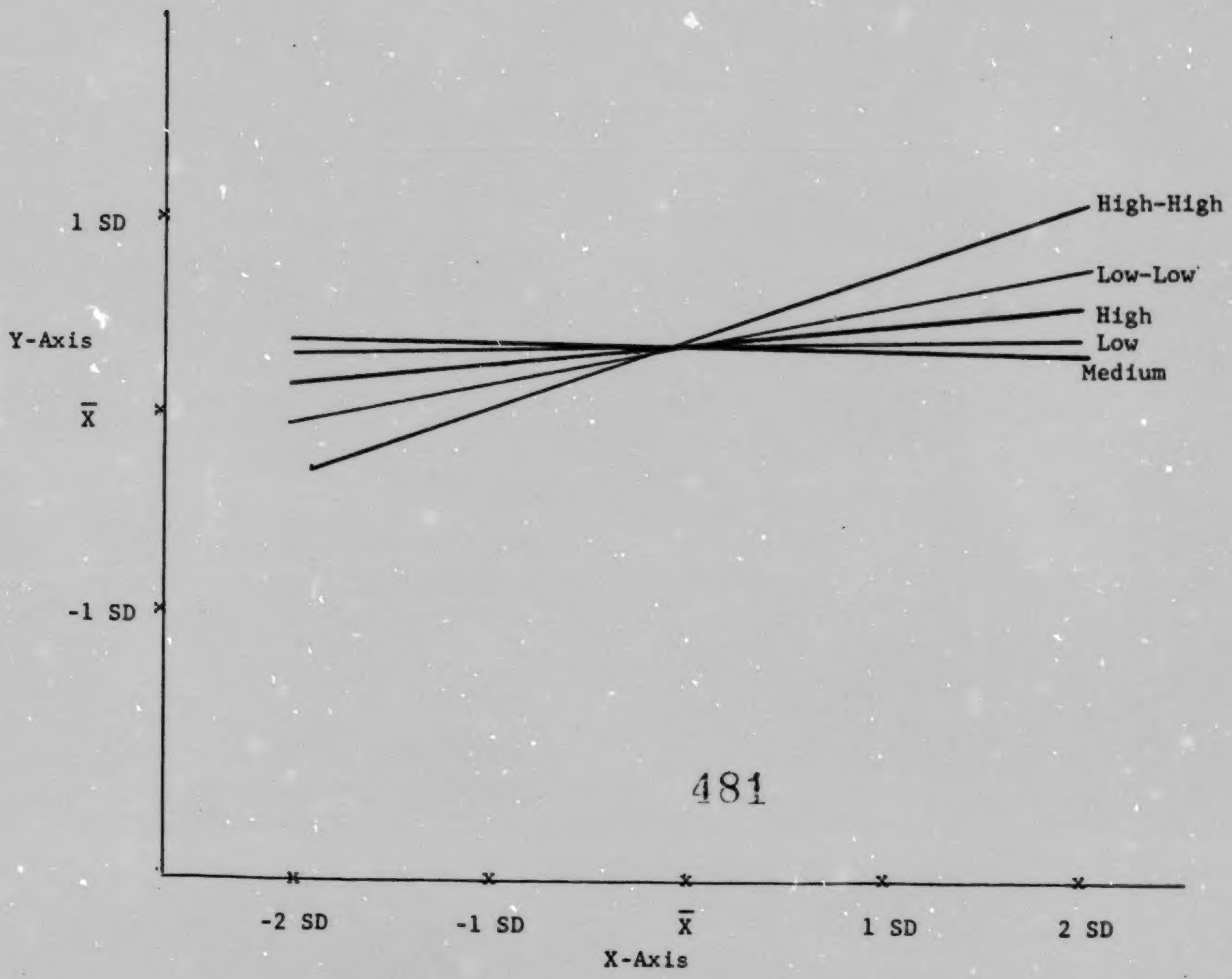
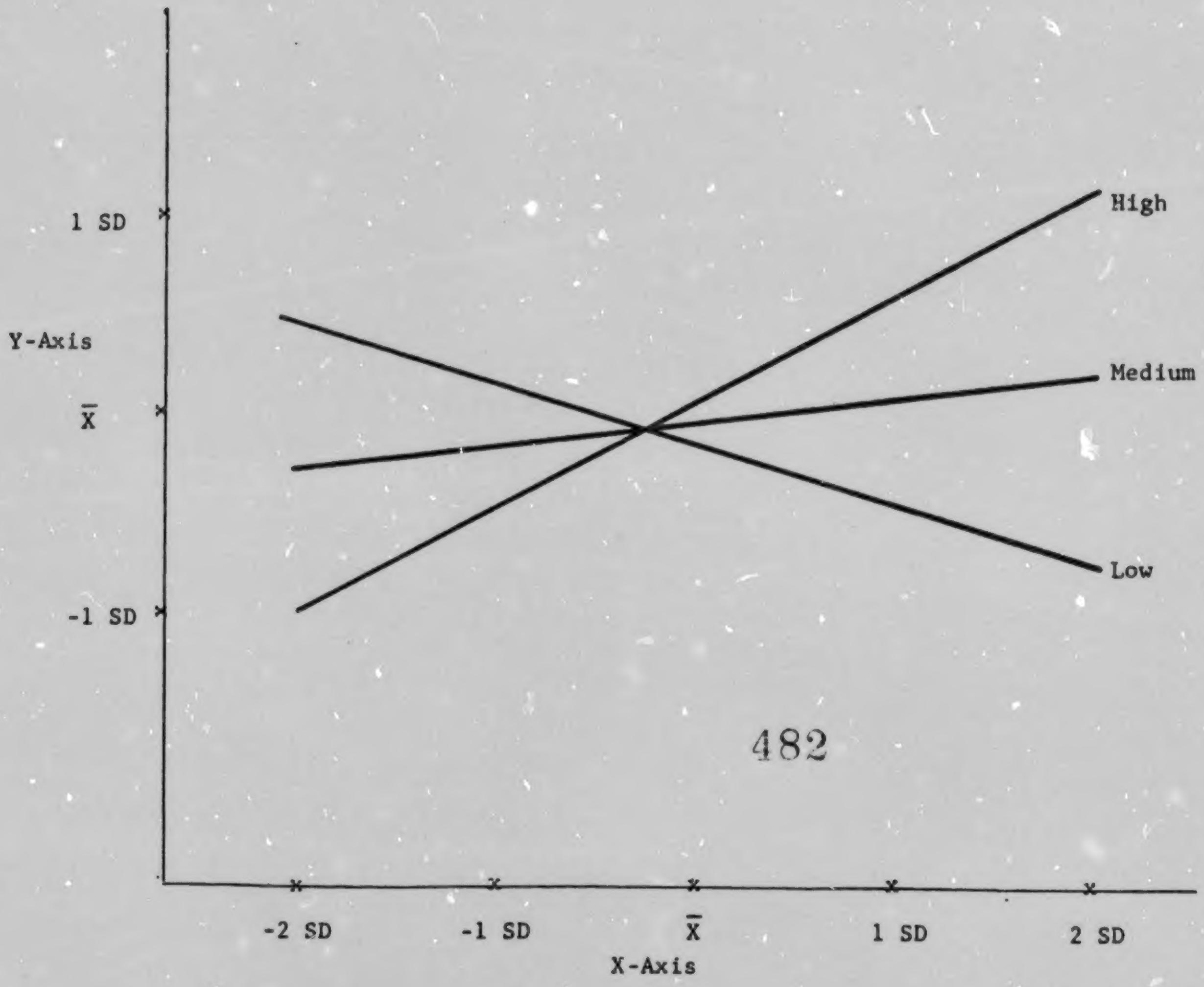


FIGURE V-27

Y-Axis (Criterion) Self-est (P-H) Post.Pre
X-Axis (Predictor) SSC-Att
Grouped on COR-SO

Figure Number 5.1 - 16B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



482

FIGURE V-28

Y-Axis (Criterion) Self-est (P-H) Post.Pre
X-Axis (Predictor) SSI-Att
Grouped on COR-SI

Figure Number 5.1 - 17B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

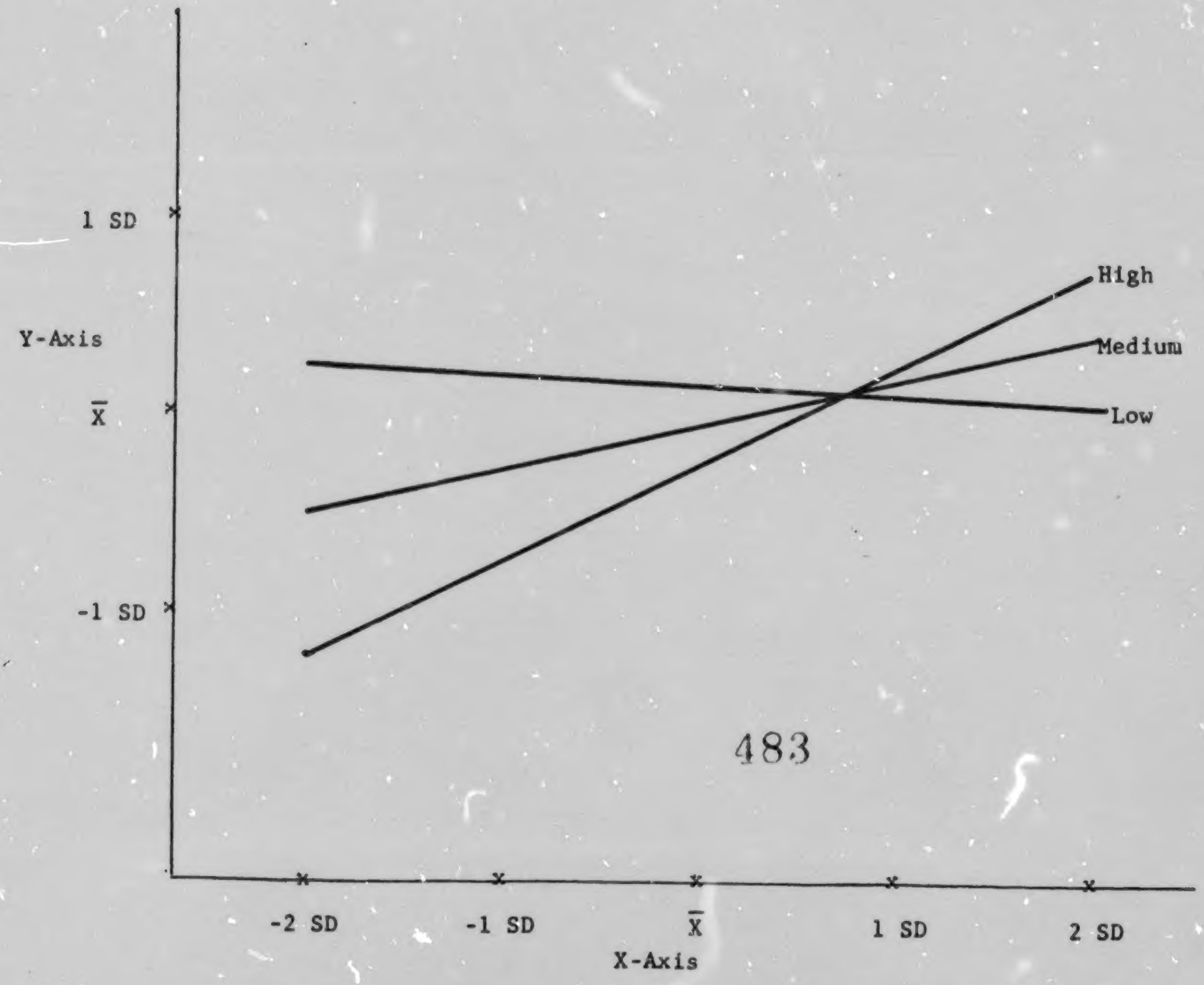
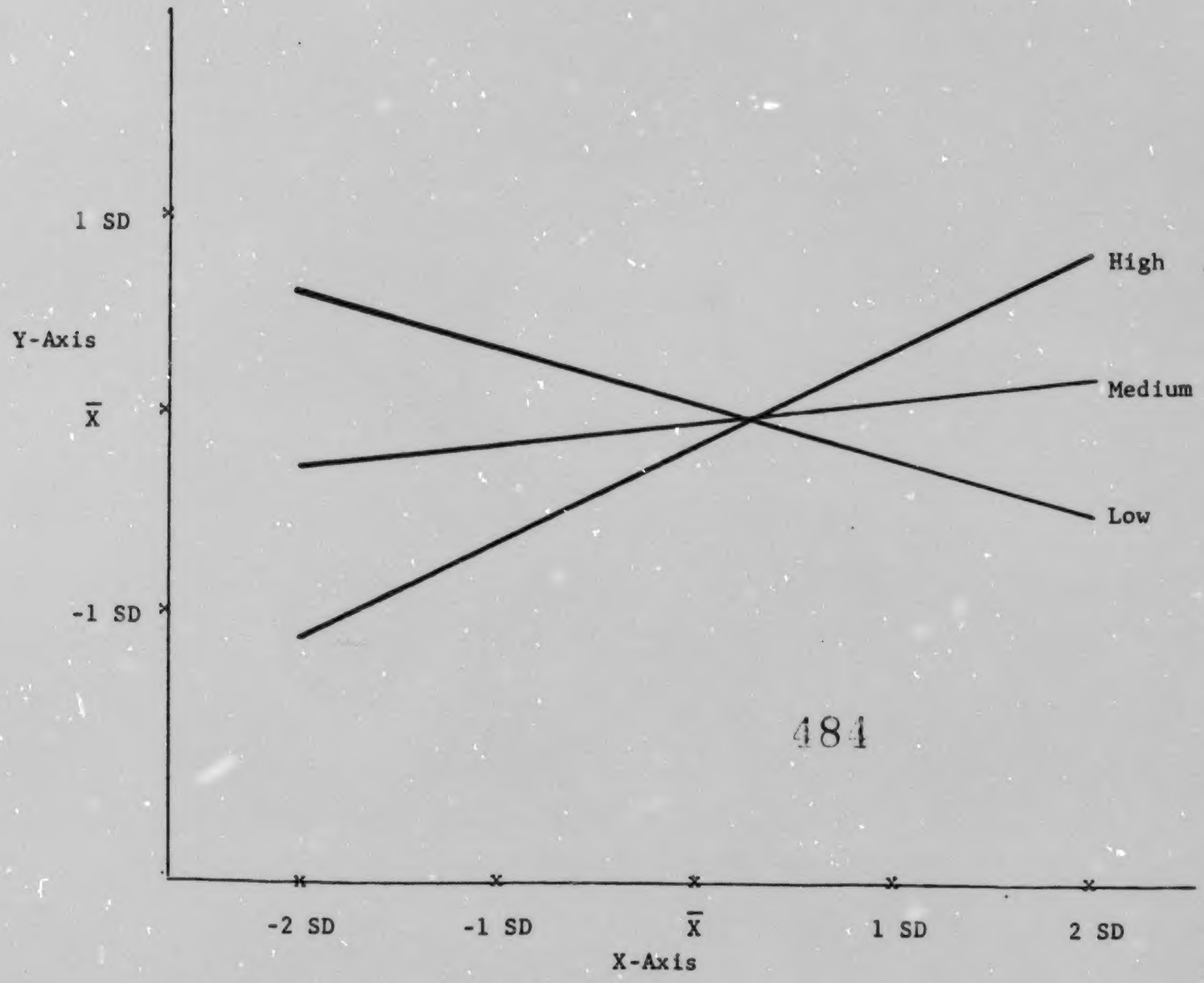


FIGURE V-29

Y-Axis (Criterion) Self-est (P-H) Post.Pre
X-Axis (Predictor) SSC-Att
Grouped on COR-SI

Figure Number 5.1 - 18B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



484

FIGURE V-30

Y-Axis (Criterion) Self-est (P-H) Post.pre
X-Axis (Predictor) SSC-Cop
Grouped on COR-SI

Effect Pre-Q x Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at - .5 SD

Figure Number 5.1 - 12W
Figure ID
Table

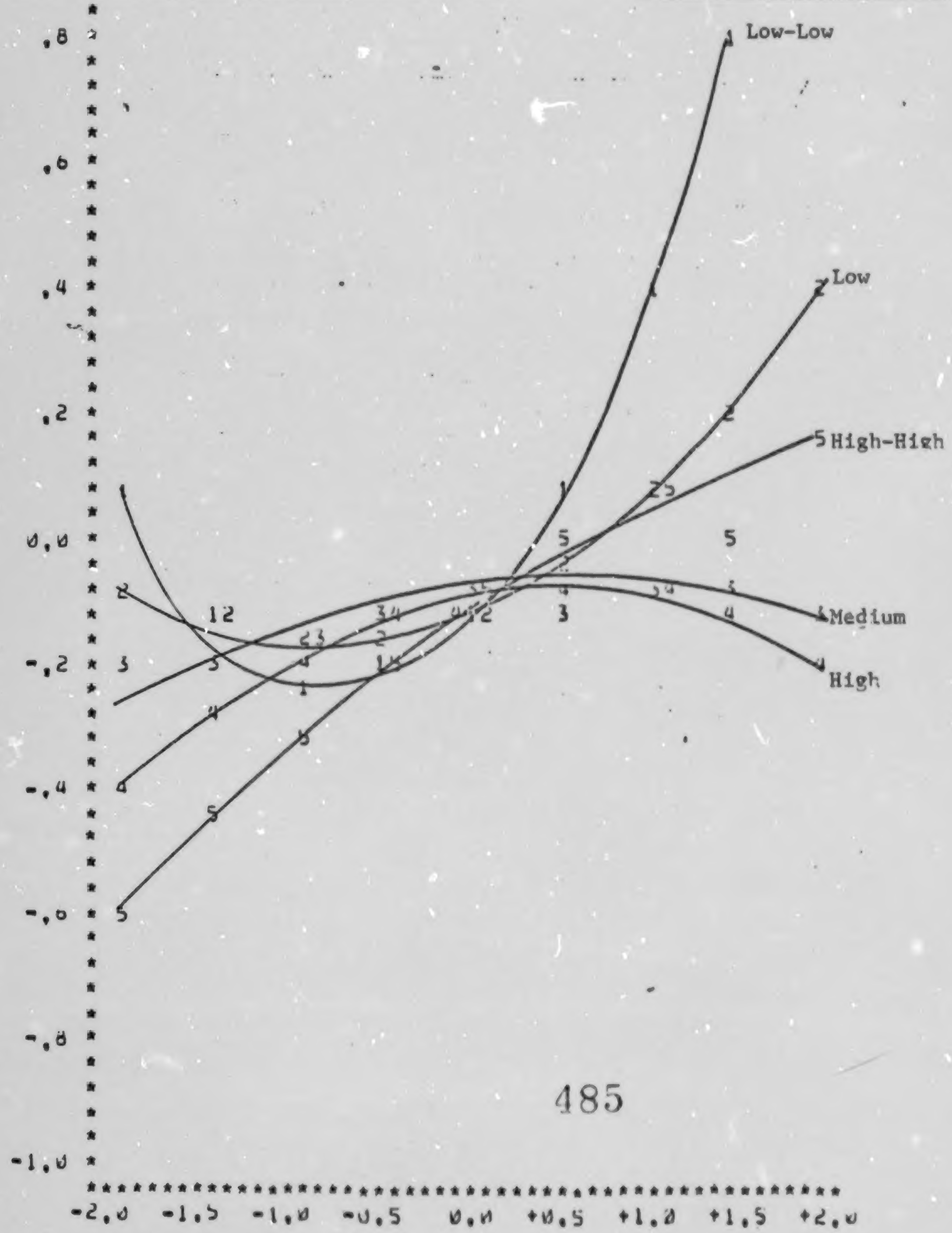
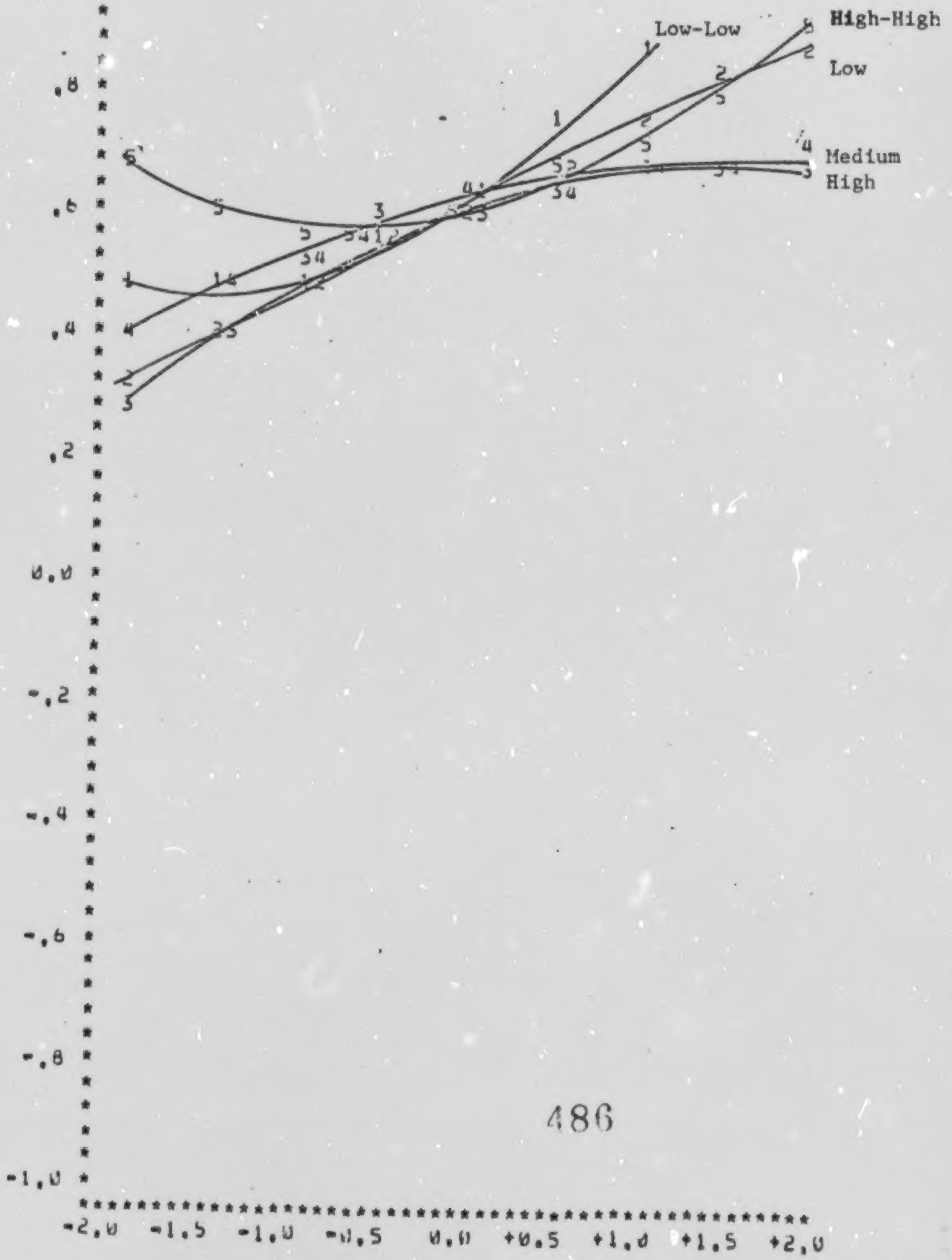


FIGURE V-31

Y-Axis (Criterion) Self-est (P-H) Post.pre
X-Axis (Predictor) SSC-Cop
Grouped on COR-SI
Effect Pre-Q x Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at + .5 SD

Figure Number 5.1 - 14W
Figure ID
Table

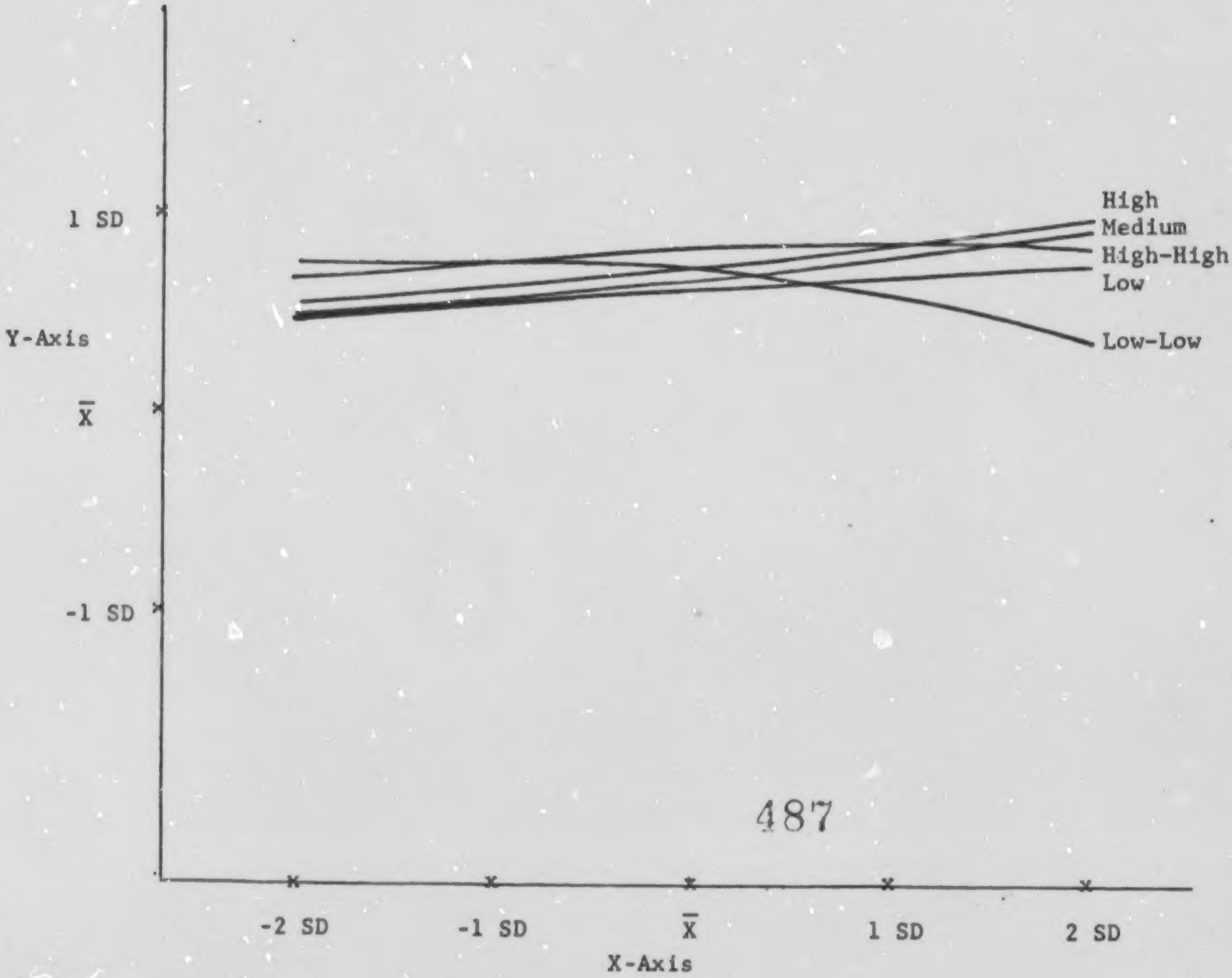


486

FIGURE V-32

Y-Axis (Criterion) Self-est (P-H) Post.pre
X-Axis (Predictor) SES
Grouped on COR-KU
Figure Number 5.1 - 13W
Figure ID
Table

Effect Pre-Q x Pupil-Q x Teacher-Q
Year and site Austin I
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at + .5 SD

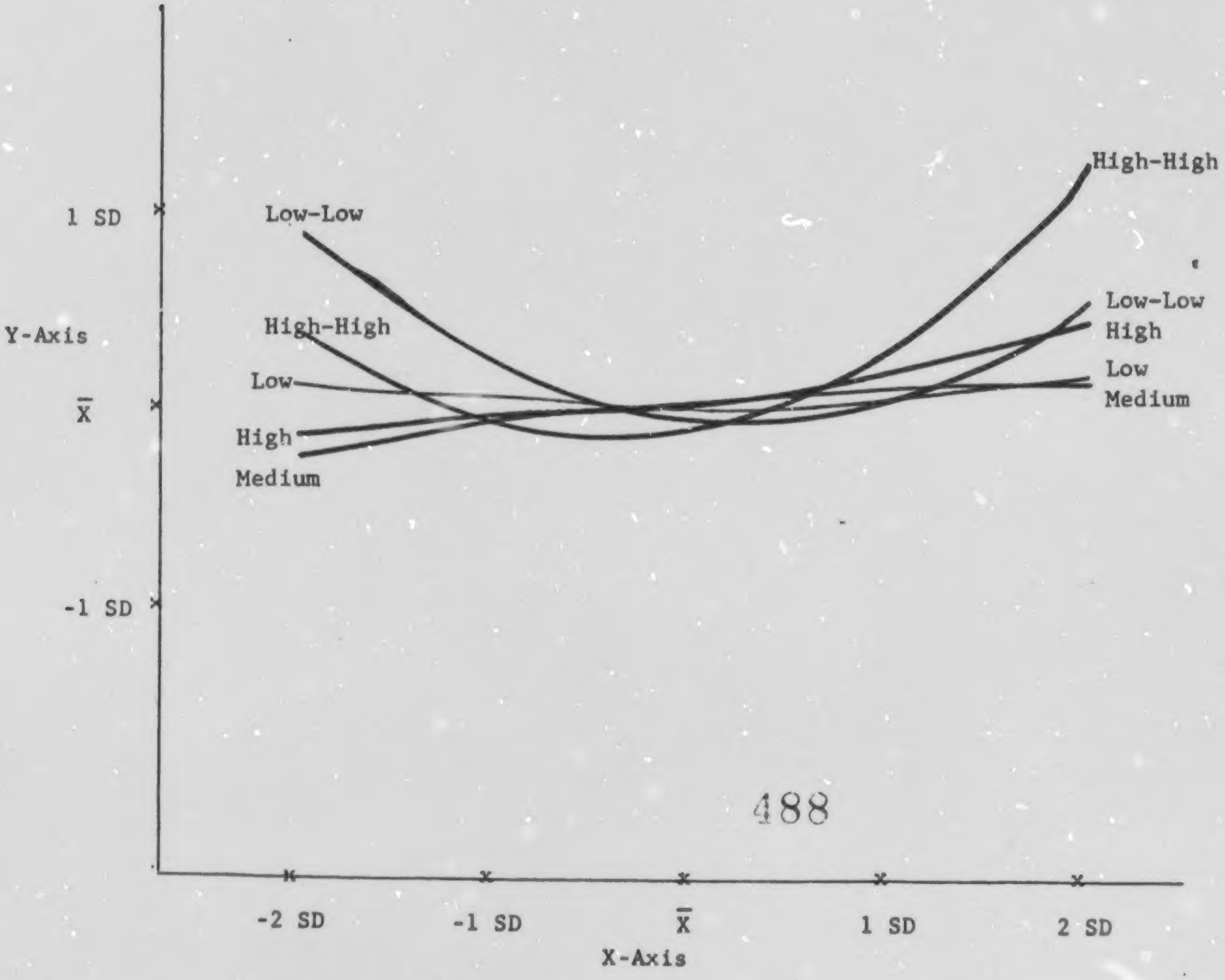


487

FIGURE V-33

Y-Axis (Criterion) Self-est (P-H) Post.pre
Figure Number 5.1 - 13W#2
X-Axis (Predictor) SES
Figure ID
Grouped on COR-KU
Table

Effect Pre-Q x Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled yes
Multiple graph; X at - .5 SD



488

FIGURE V-34

Y-Axis (Criterion) SELF-EST (P-H) Post-Pre
X-Axis (Predictor) SSC-Att
Grouped on COR-KU

Figure Number 5.1 - 19B
Figure ID
Table

Effect Pupil-L x Teacher-L+Q
Year and site Austin I
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

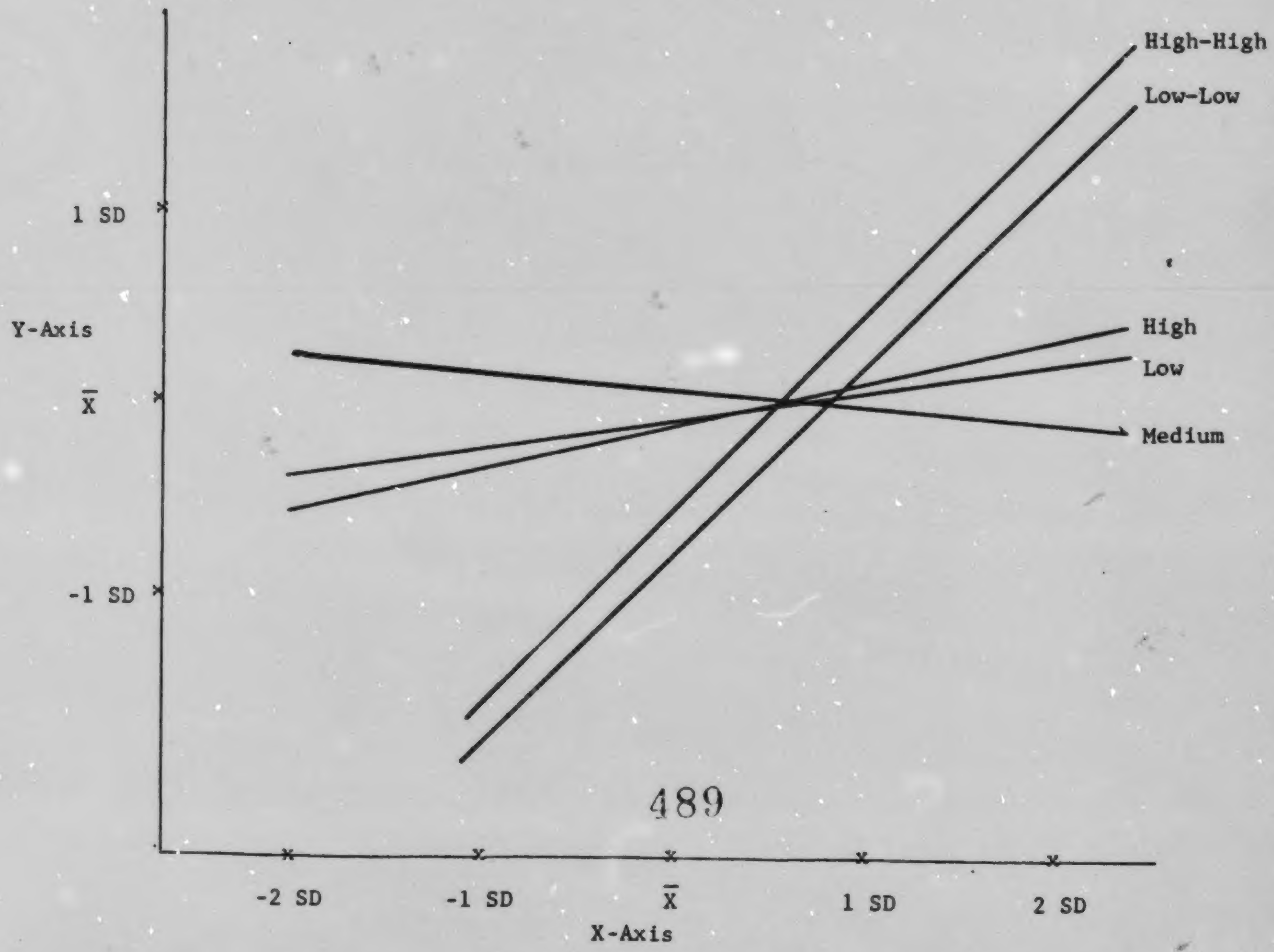
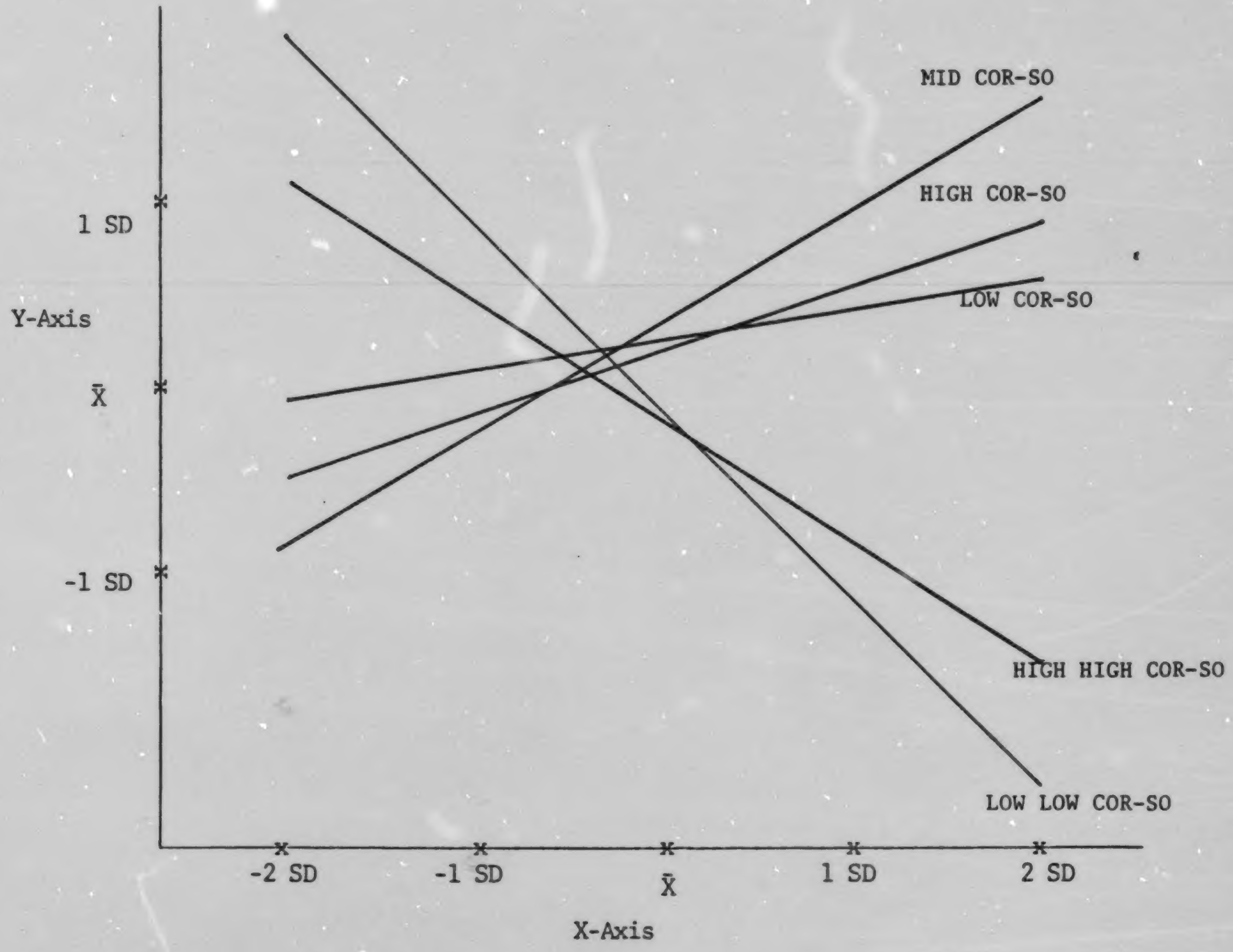


FIGURE V-35

Y-Axis (Criterion) SSD-Post
X-Axis (Predictor) SSD-Pre
Grouped on COR-SO

Effect Pretest*Teacher Q
Year and site Austin 2
Stage V
Unit of Analysis Between Class
Pretest controlled
Multiple graph; X at

Figure Number 5.2-2B
Figure ID
Table



490

FIGURE V-36

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) GMC-3
Grouped on COR-SO
Figure Number 5.2 - 5W
Figure ID
Table

Effect Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Analysis
Pretest controlled Yes
Multiple graph; X at

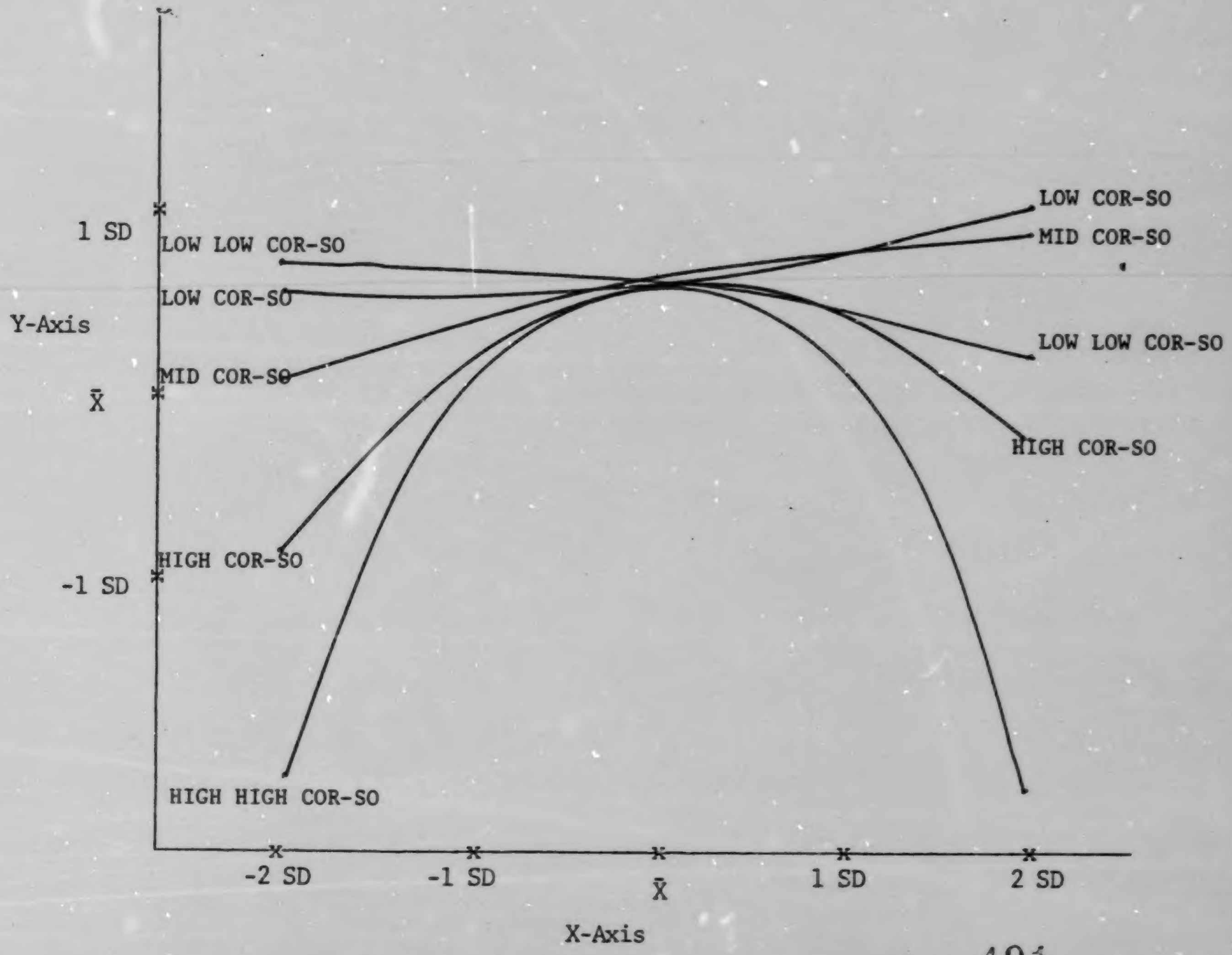


FIGURE V-37

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) SET
Grouped on COR-SO

Figure Number 5.2 - 4W
Figure ID
Table

Effect Pretest*Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph; X at SSD Pretest Mean @ +1SD

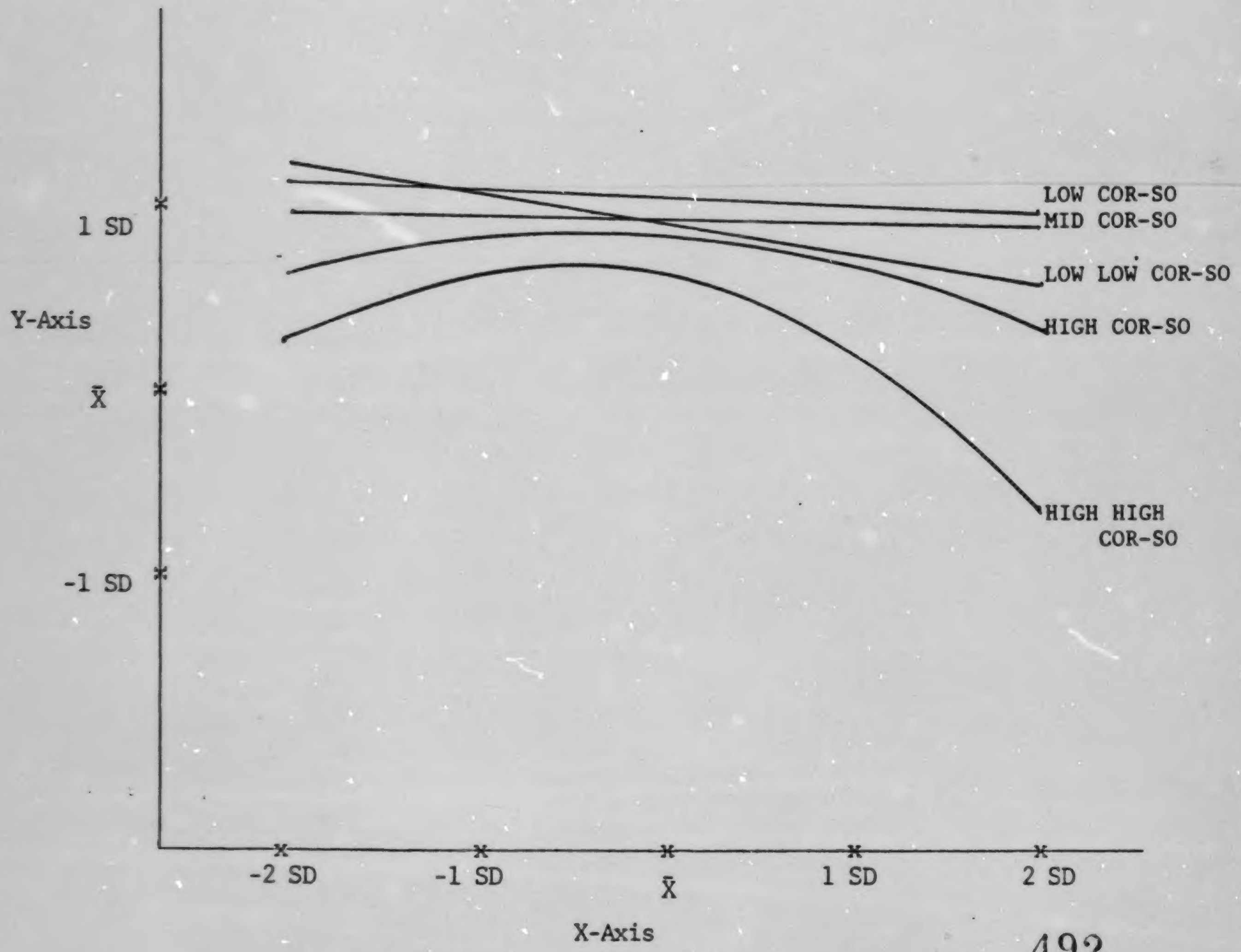
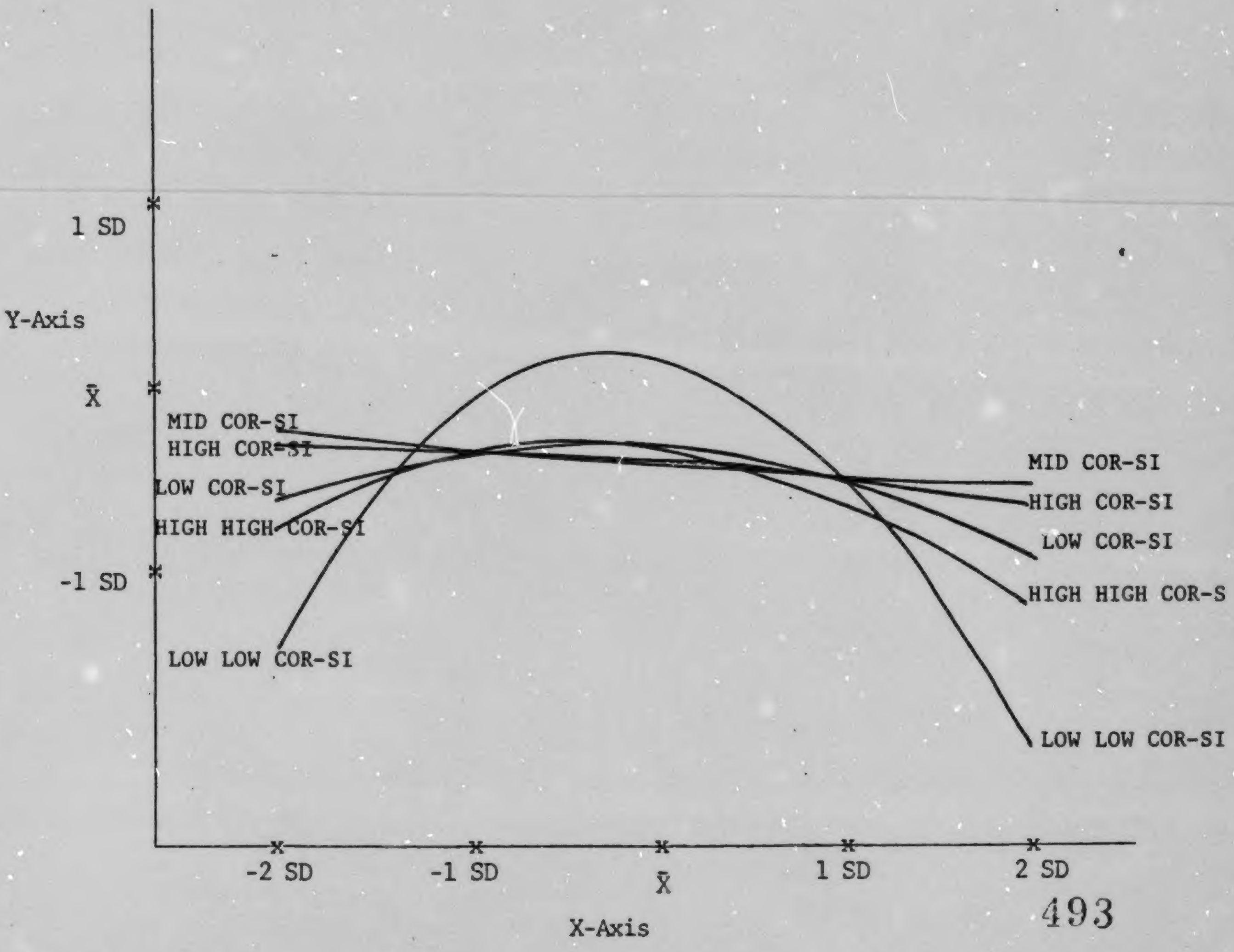


FIGURE V-38

Y-Axis (Criterion) SSD REGRESSED CHANGE
X-Axis (Predictor) SSC-C
Grouped on COR-SI

Figure Number 5.2-7W
Figure ID
Table

Effect Pretest*Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within class
Pretest controlled Yes
Multiple graph; X at SSD Pretest at +1SD



493

FIGURE V-39

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) SSC-C
Grouped on COR-SI

Figure Number 5.2-6W#1
Figure ID
Table

Effect Pretest*Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph; X at SSD Pretest Mean

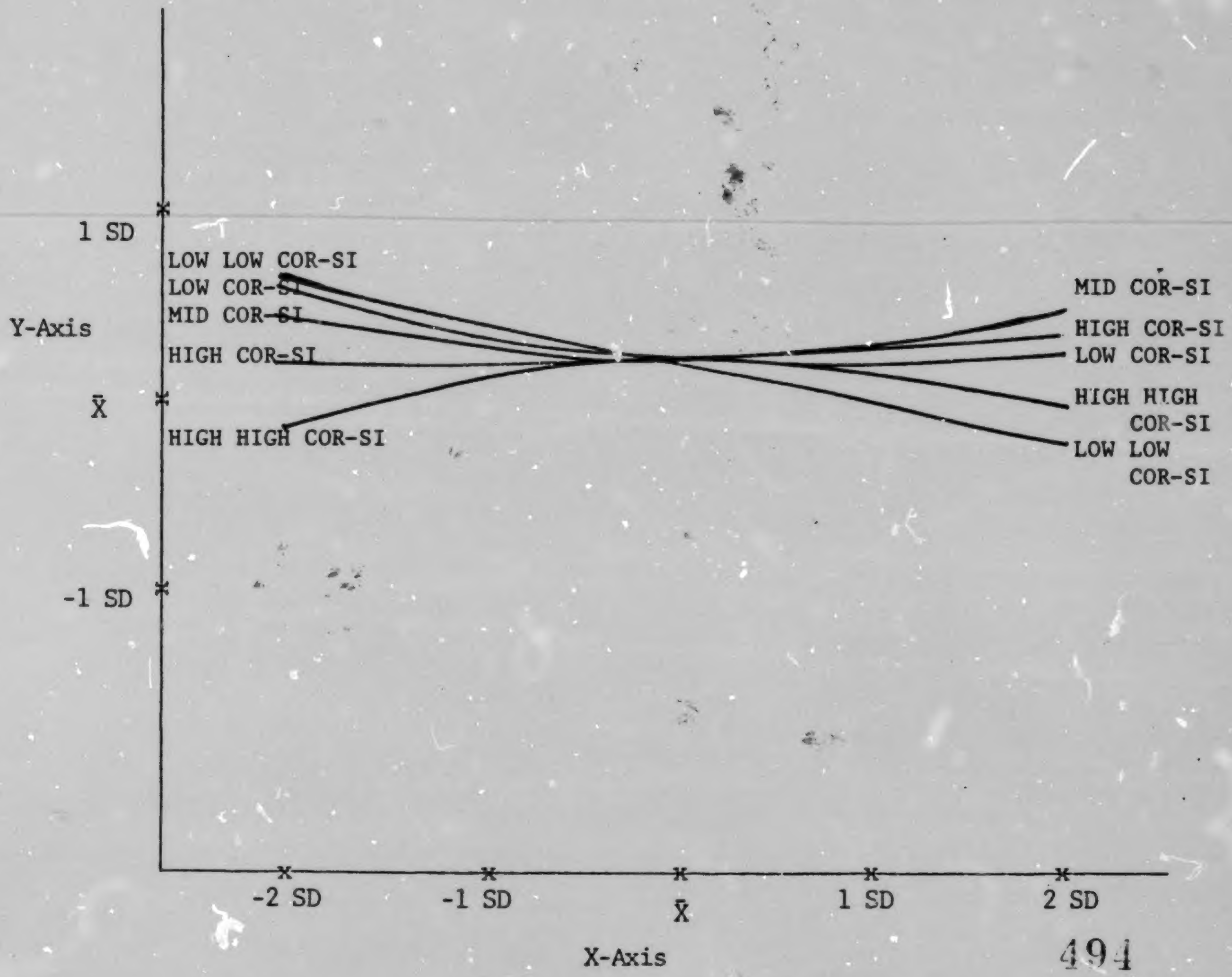


FIGURE V-40

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) SSC-C
Grouped on COR-SI

Figure Number 5.2-6W#2
Figure ID
Table

Effect Pretest*Pupil-0*Teacher-0
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph: X at SSD Pretest Mean at -1SD

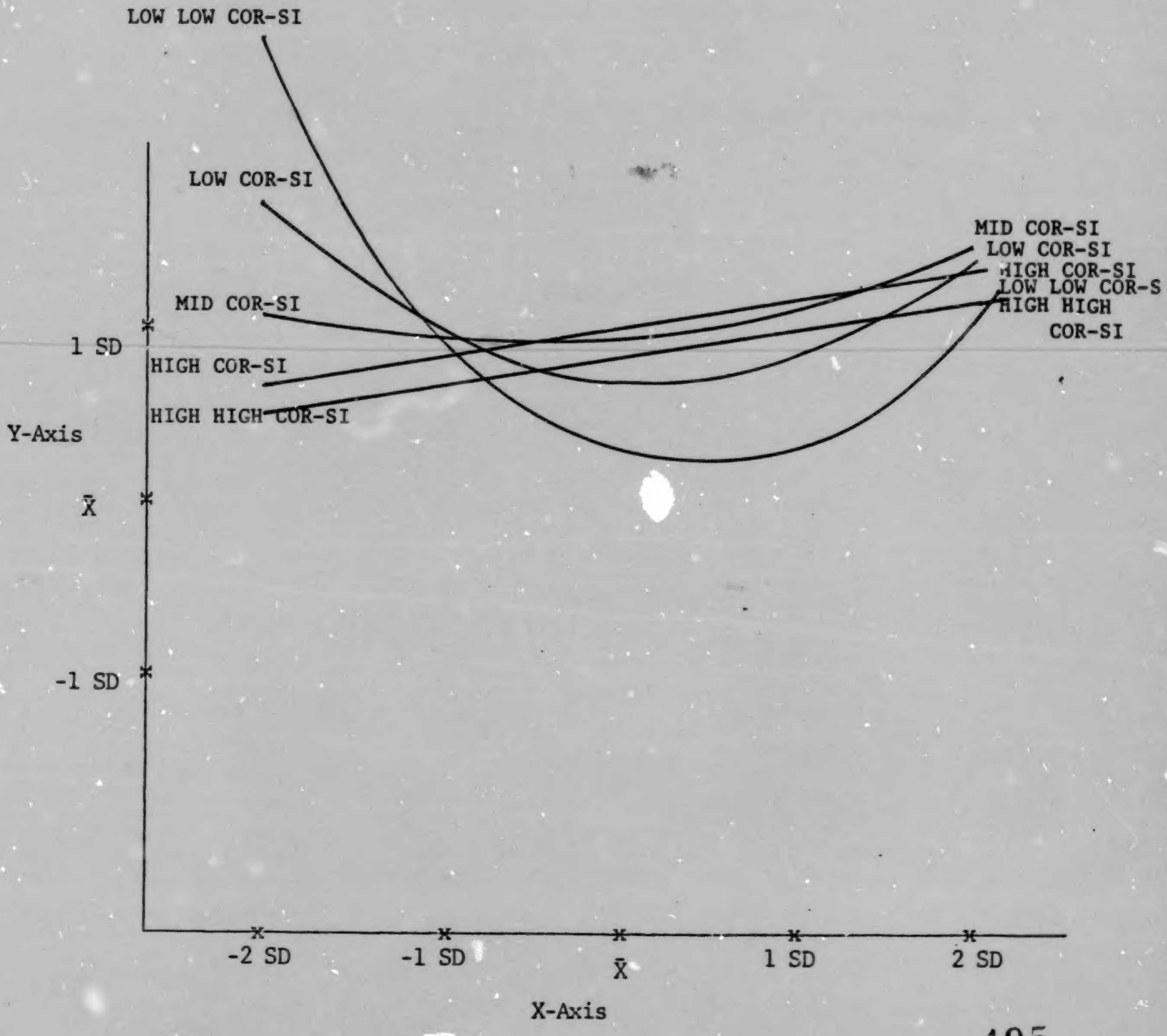


FIGURE V-41

Y-Axis (Criterion) SSD Regressed-Change
X-Axis (Predictor) SSC-C
Grouped on COR-KU

Effect Pupil*Teacher^{L+Q}
Year and site Austin 2
Stage 5
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2-1B
Figure ID
Table

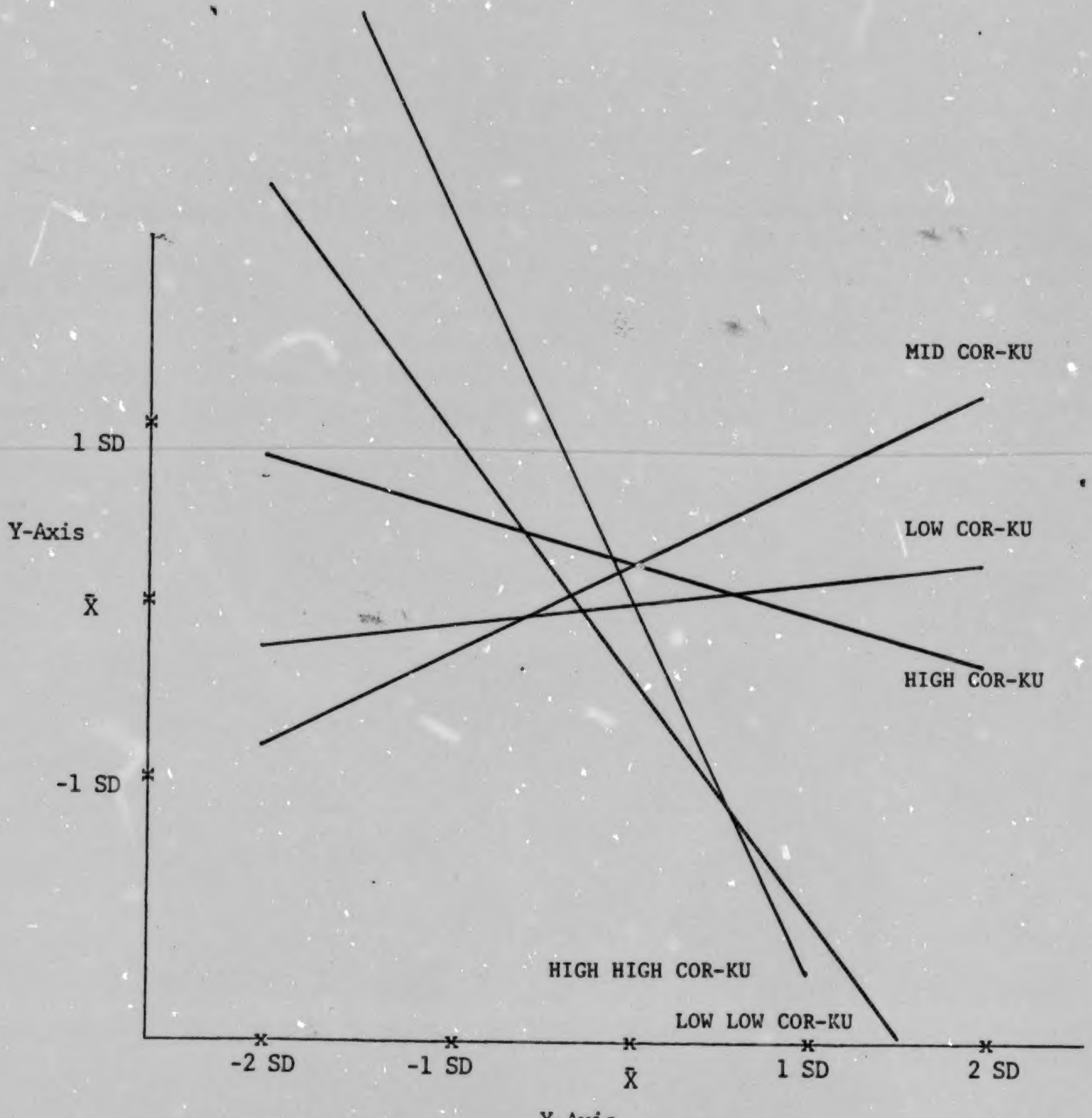


FIGURE V-42

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) SES
Grouped on COR-KU

Figure Number 5.2 - 1W#1
Figure ID
Table

Effect Pretest*Pupil-Q, Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph; X at SSD Pretest at + .5SD

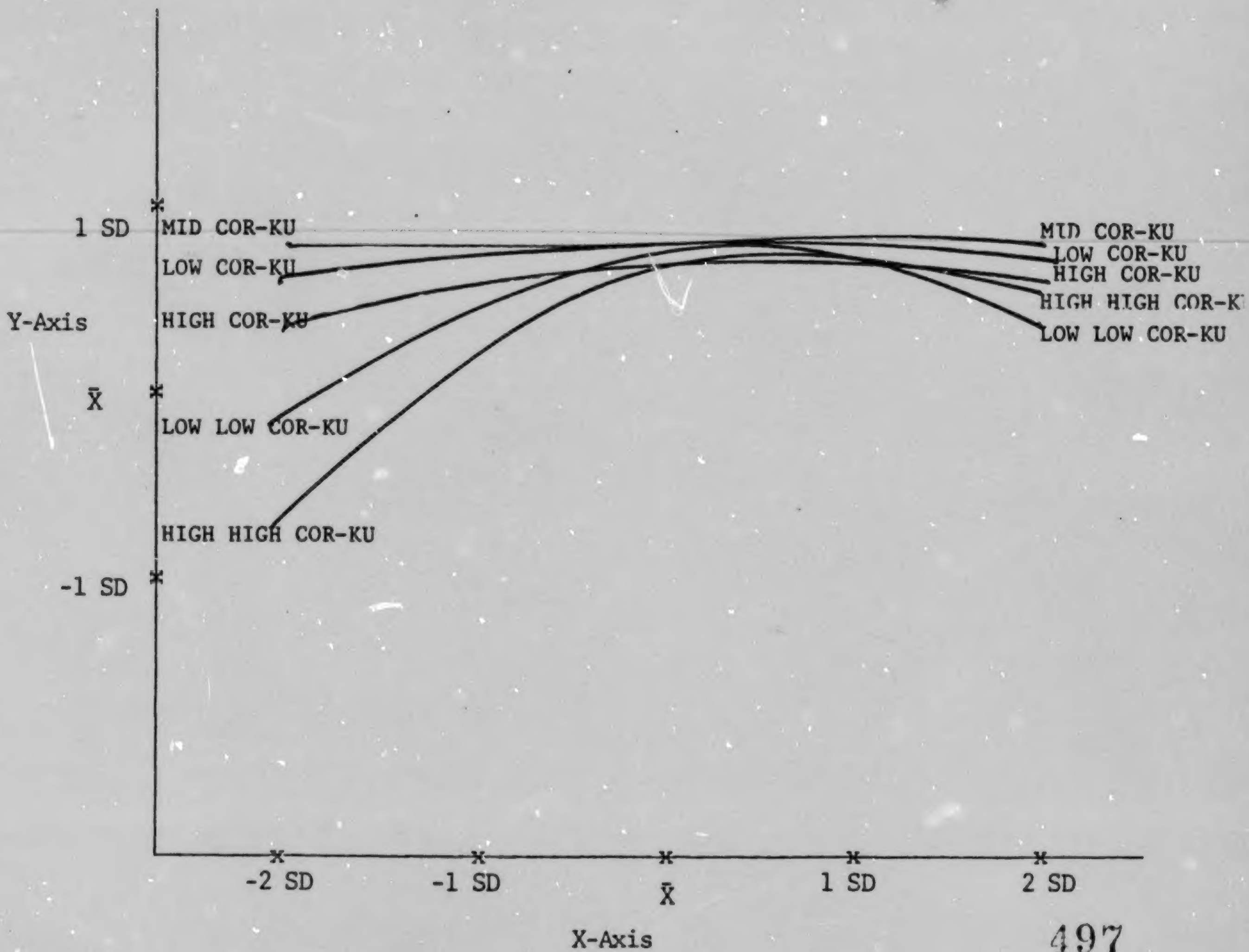
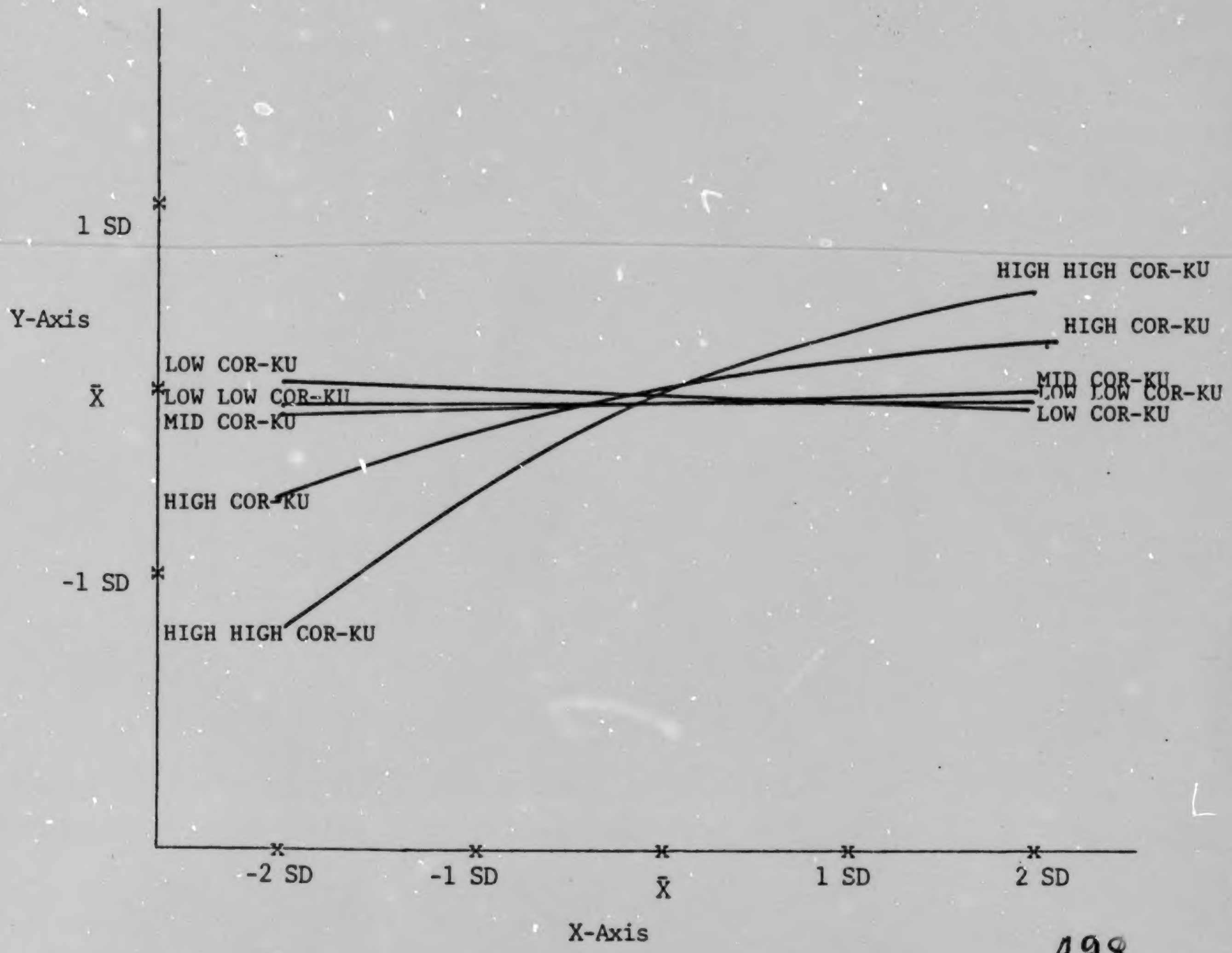


FIGURE V-43

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) SES
Grouped on COR-KU

Figure Number 5.2 - 2W
Figure ID
Table

Effect Pretest*Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph; X at SSD Pretest at -.5SD



A98

FIGURE V-44

Y-Axis (Criterion) SSD Regressed Change
X-Axis (Predictor) BRS-SR
Grouped on COR-KU

Effect Pupil-Q*Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2 - 3W
Figure ID
Table

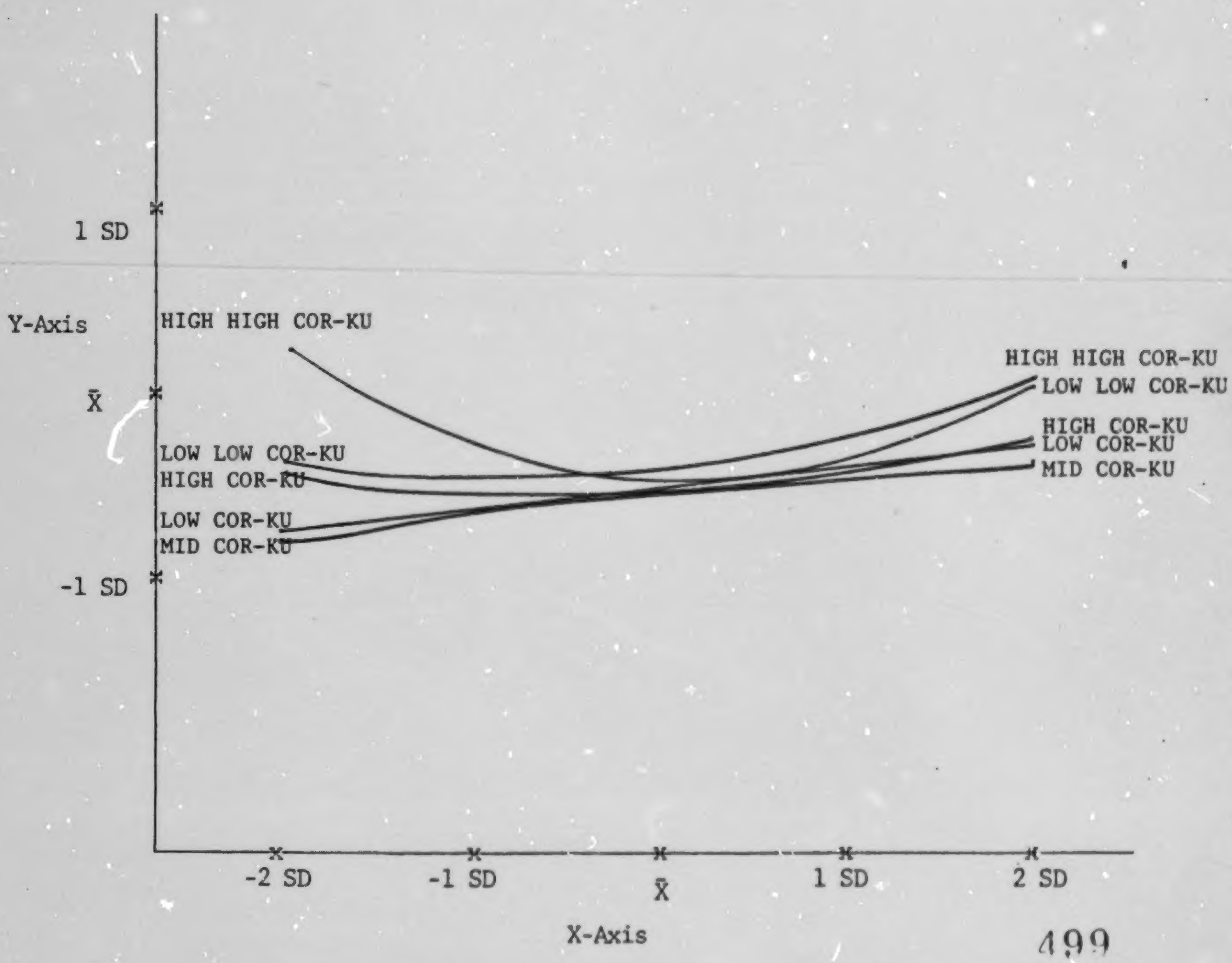
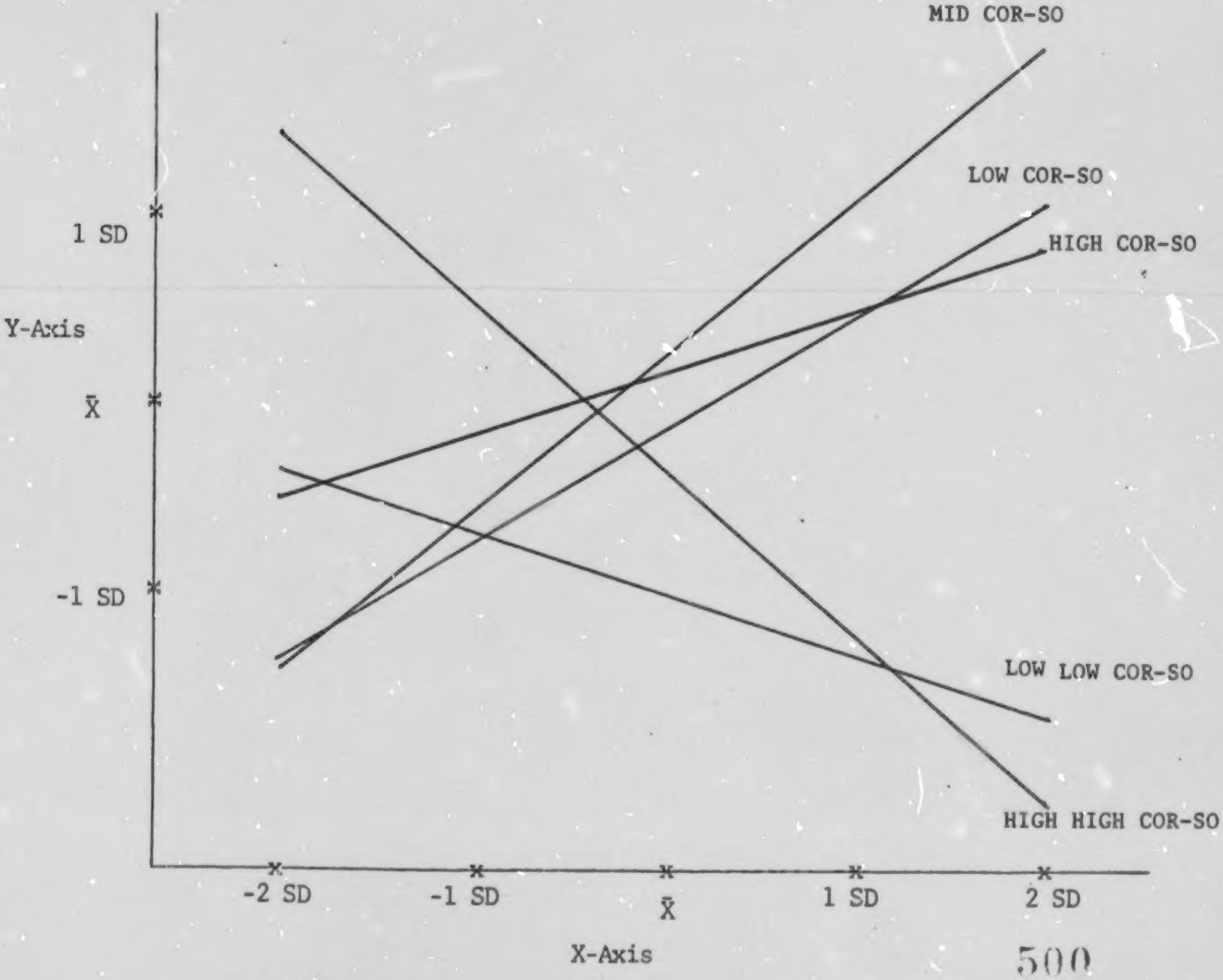


FIGURE V-45

Y-Axis (Criterion) P-H Post
X-Axis (Predictor) P-H Pre
Grouped on COR-SO

Effect Pretest*Teacher-Q
Year and site Ky I
Stage V
Unit of Analysis Between
Pretest controlled
Multiple graph; X at

Figure Number K5.1 - 2B
Figure ID
Table



500

FIGURE V-46

Y-Axis (Criterion) P-H
X-Axis (Predictor) BRS-SR
Grouped on COR-KU

Figure Number K5.1 - 1B
Figure ID
Table

Effect Pupil*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Between
Pretest controlled
Multiple graph; X at

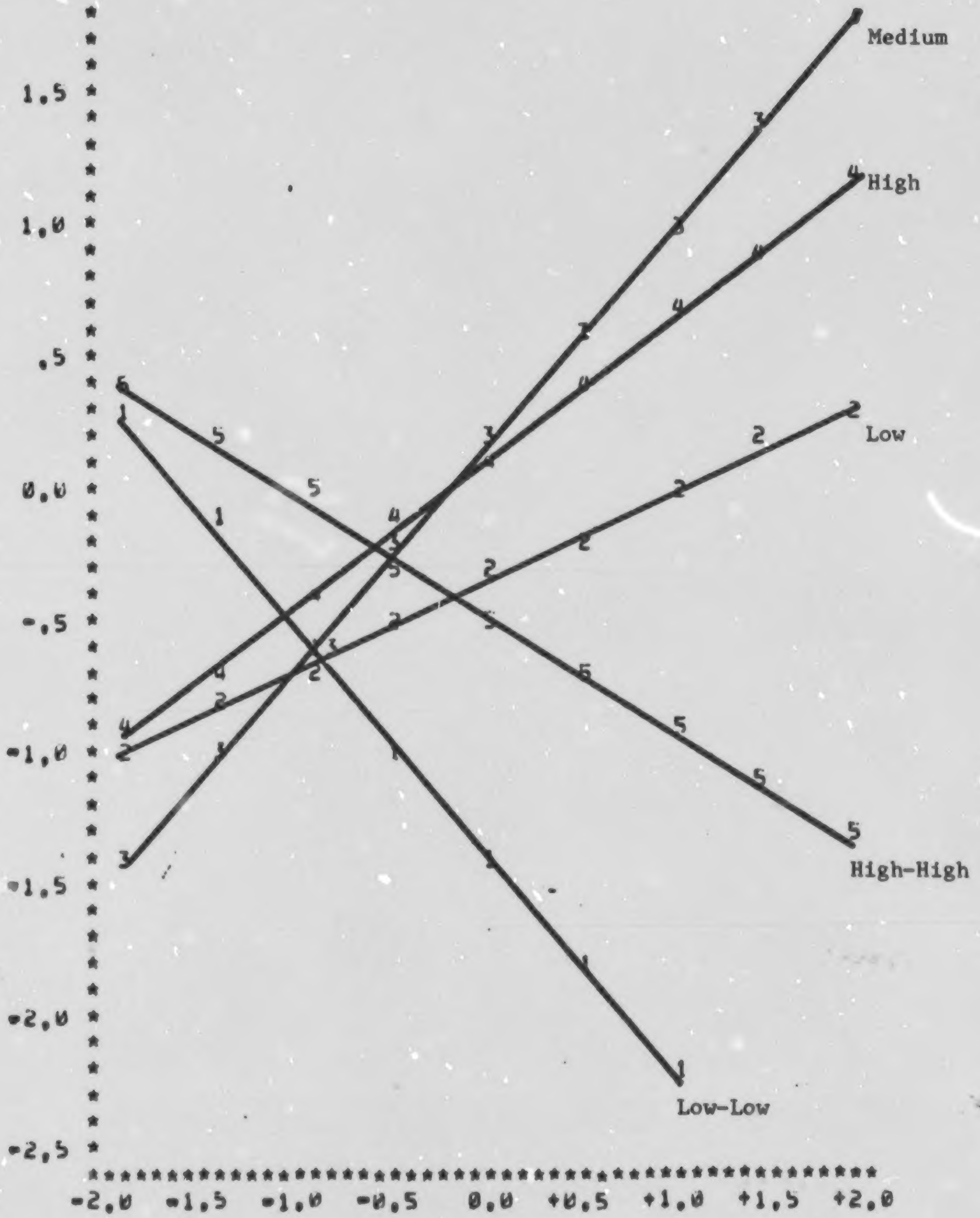
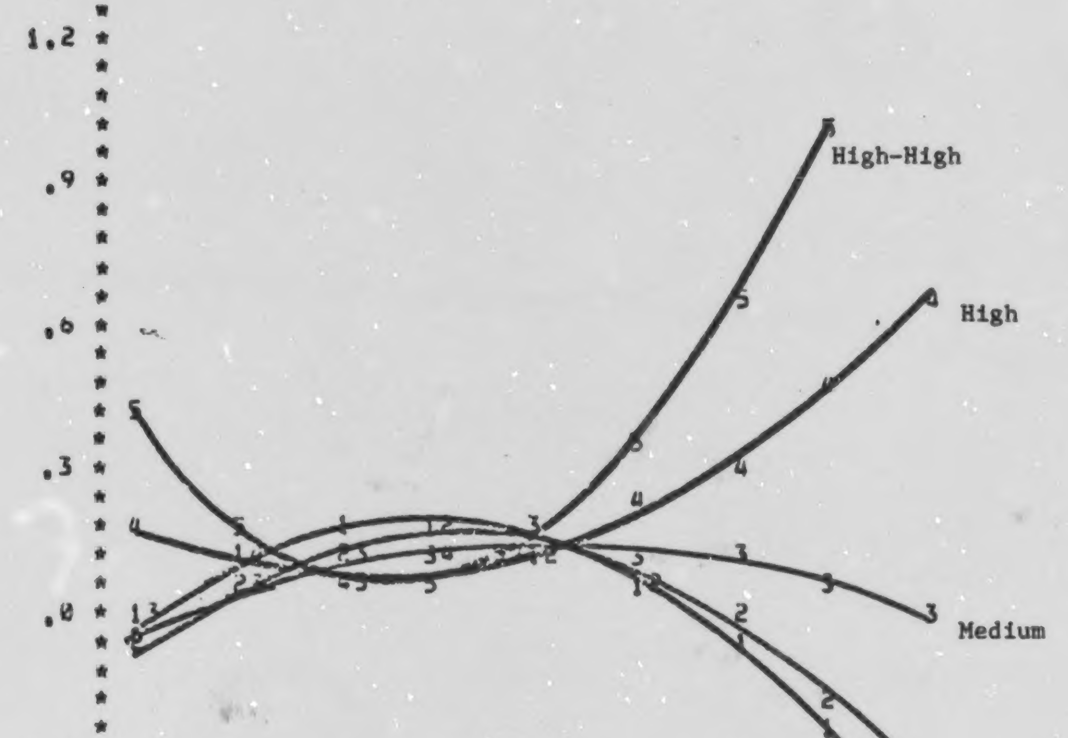


FIGURE V-47

Y-Axis (Criterion) P-H Post·Pre
X-Axis (Predictor) SSI
Grouped on COR-KU

Figure Number K5.1-1W
Figure ID
Table

Effect Pupil Q*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at



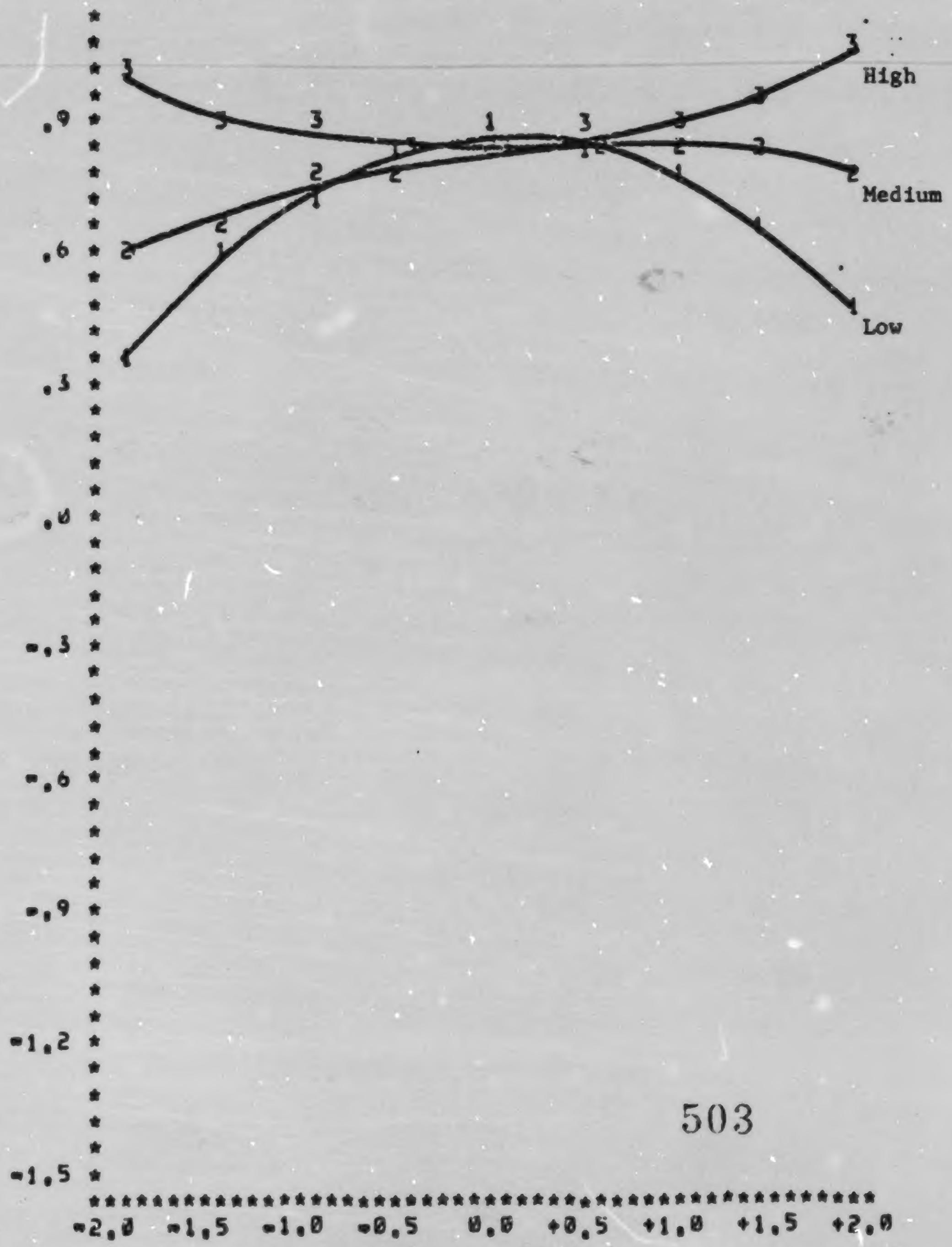
502

FIGURE V-48

Y-Axis (Criterion) P-H Post
X-Axis (Predictor) SSI
Grouped on COR-KU

Figure Number K5.1 - 3W
Figure ID

Effect Pretest*Pupil*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; Pretest at + 1 SD



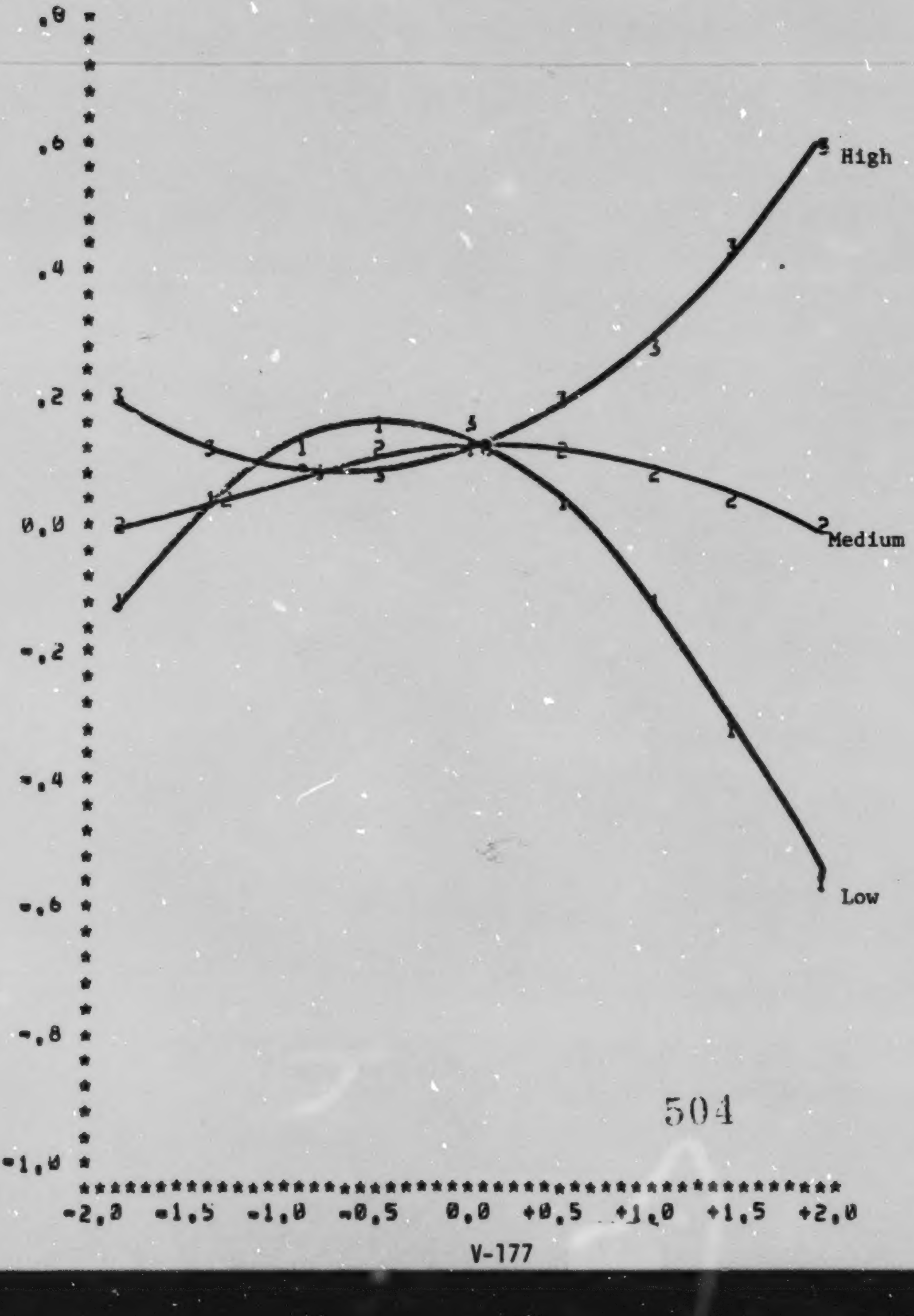
503

FIGURE V-49

Y-Axis (Criterion) P-H Post
X-Axis (Predictor) SSI
Grouped on COR-KU

Figure Number K5.1 - 4W
Figure ID

Effect Pretest*Pupil*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; Pretest at Mean



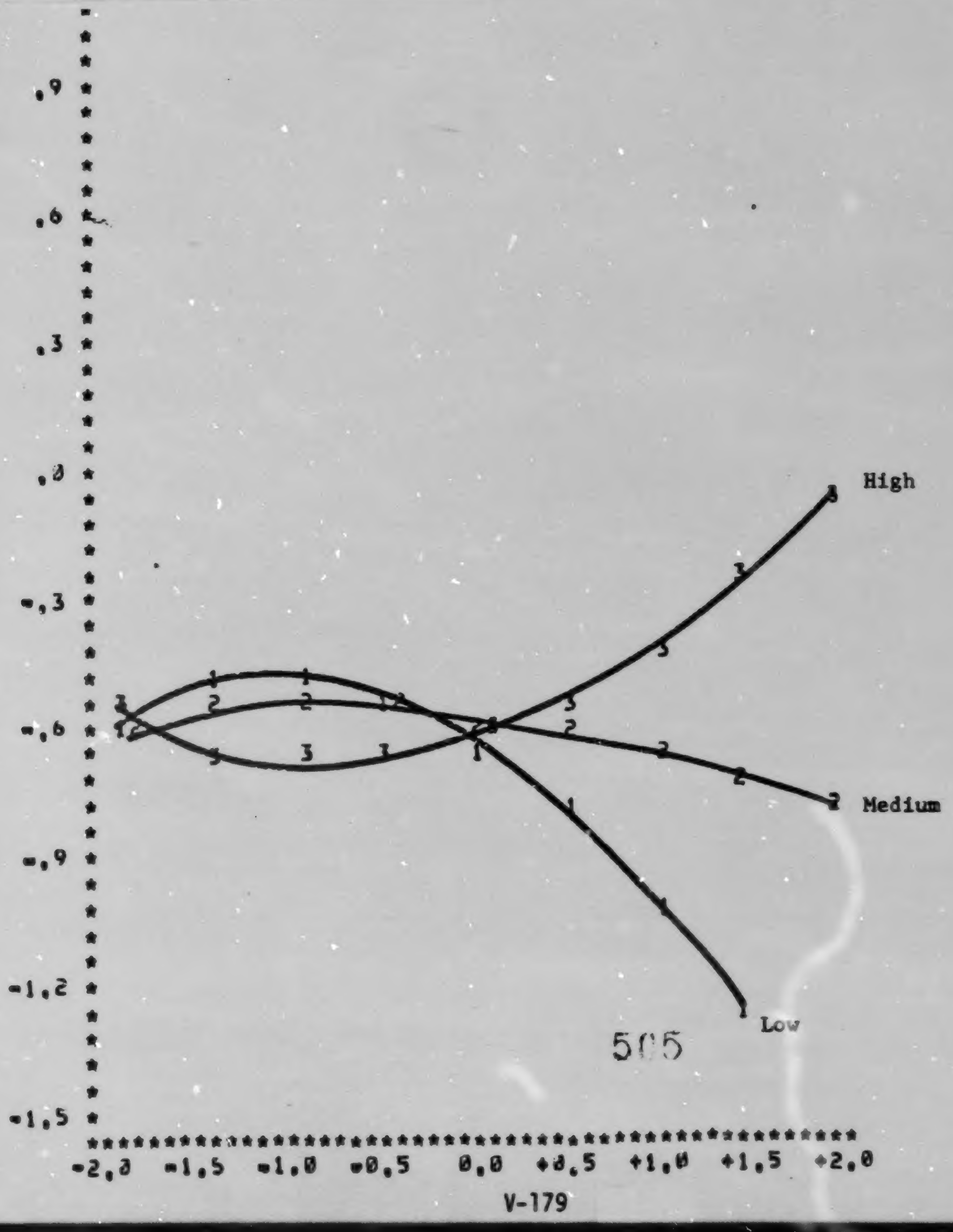
504

FIGURE V-50

Y-Axis (Criterion) P-H Post
X-Axis (Predictor) SSI
Grouped on COR-KU

Figure Number K5.1-2W
Figure ID
Table

Effect Pretest*Pupil*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; Pretest at - 1 SD



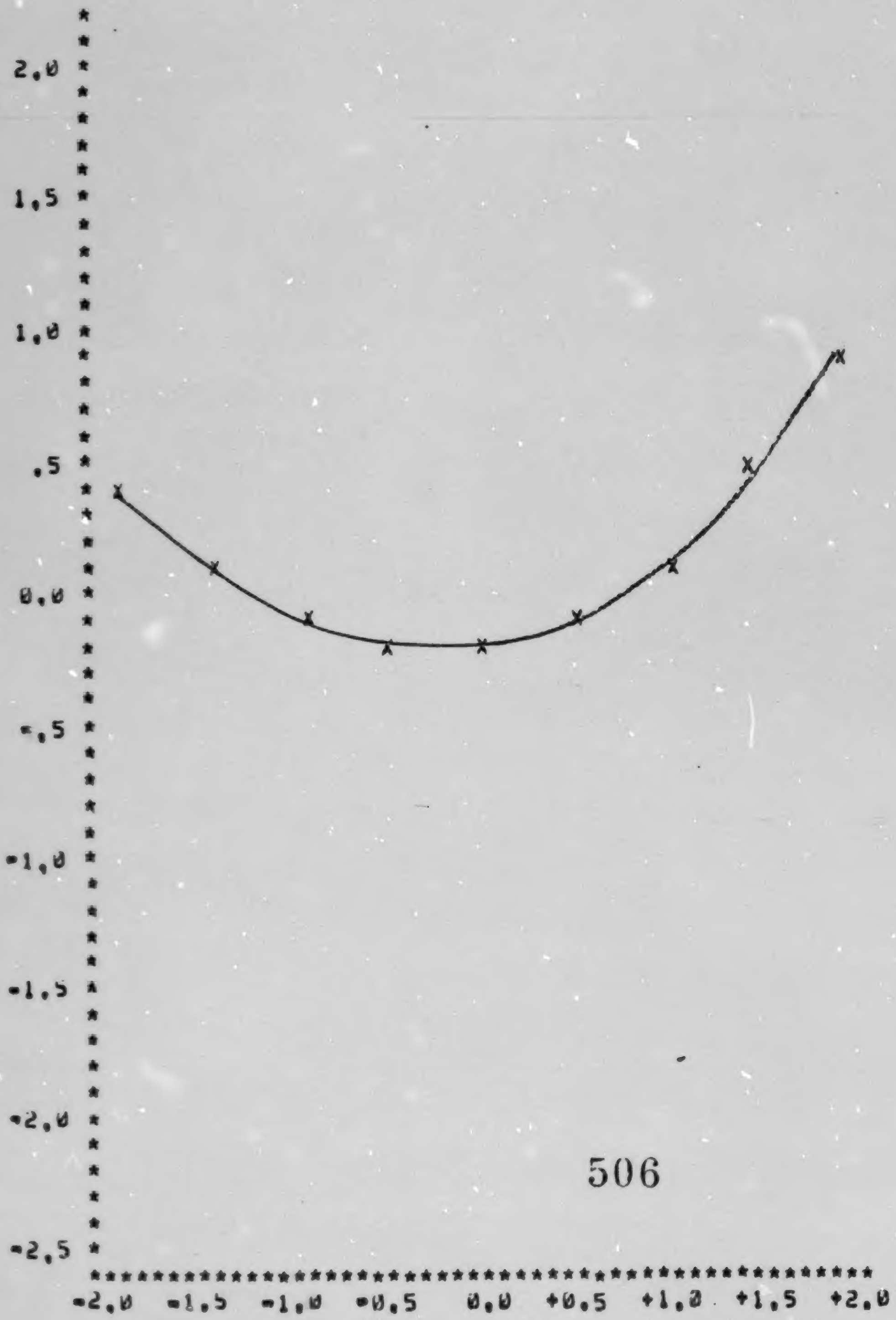
505

FIGURE V-51

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) COR-SI
Grouped on

Figure Number 4.1 - 15B
Figure ID
Table

Effect Teacher-Q
Year and site Austin 1
Stage4
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



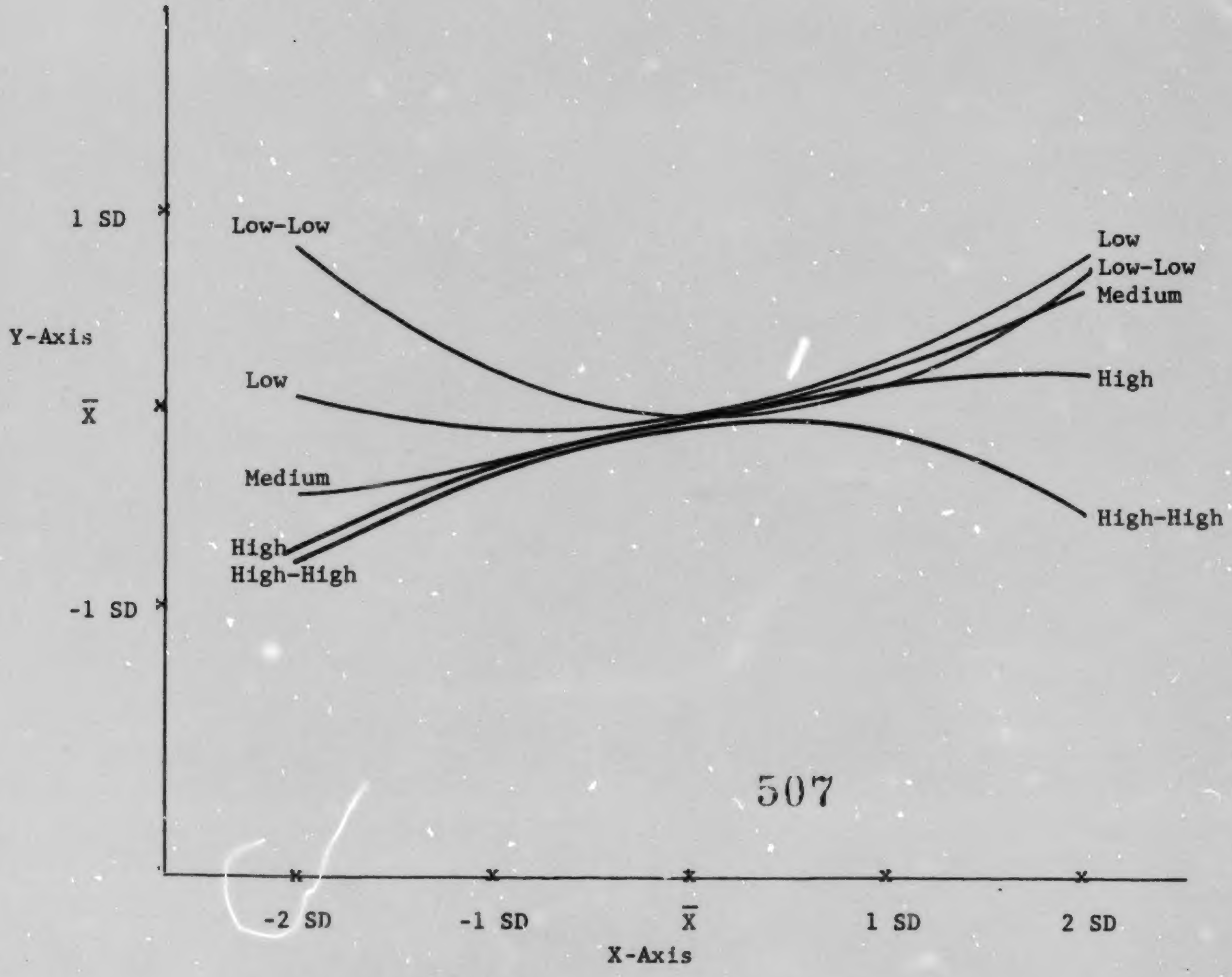
506

FIGURE V-52

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-KU

Figure Number 5.1 - 4W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at



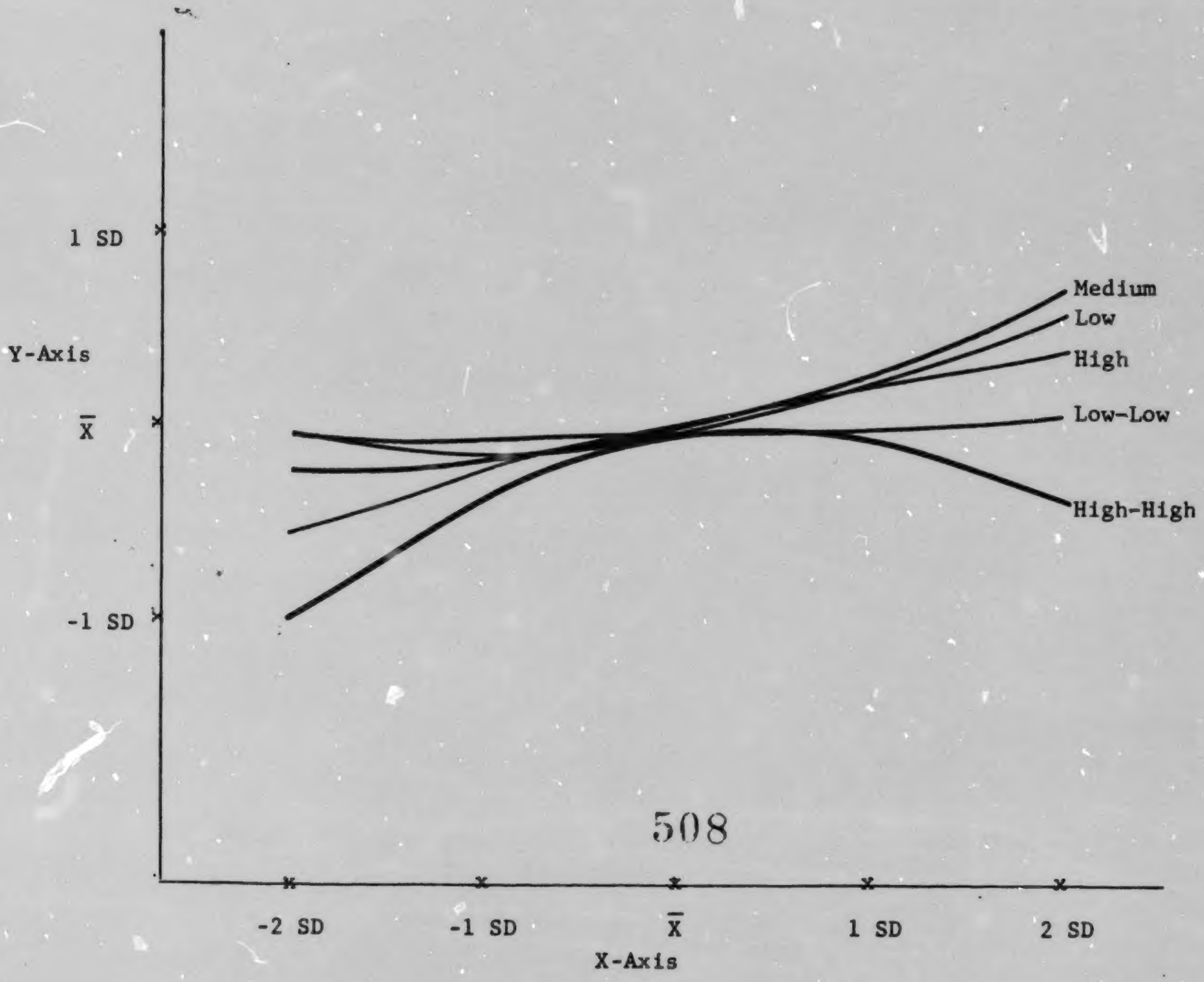
507

FIGURE V-53

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-SI

Figure Number 5.1 - 5W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; X at



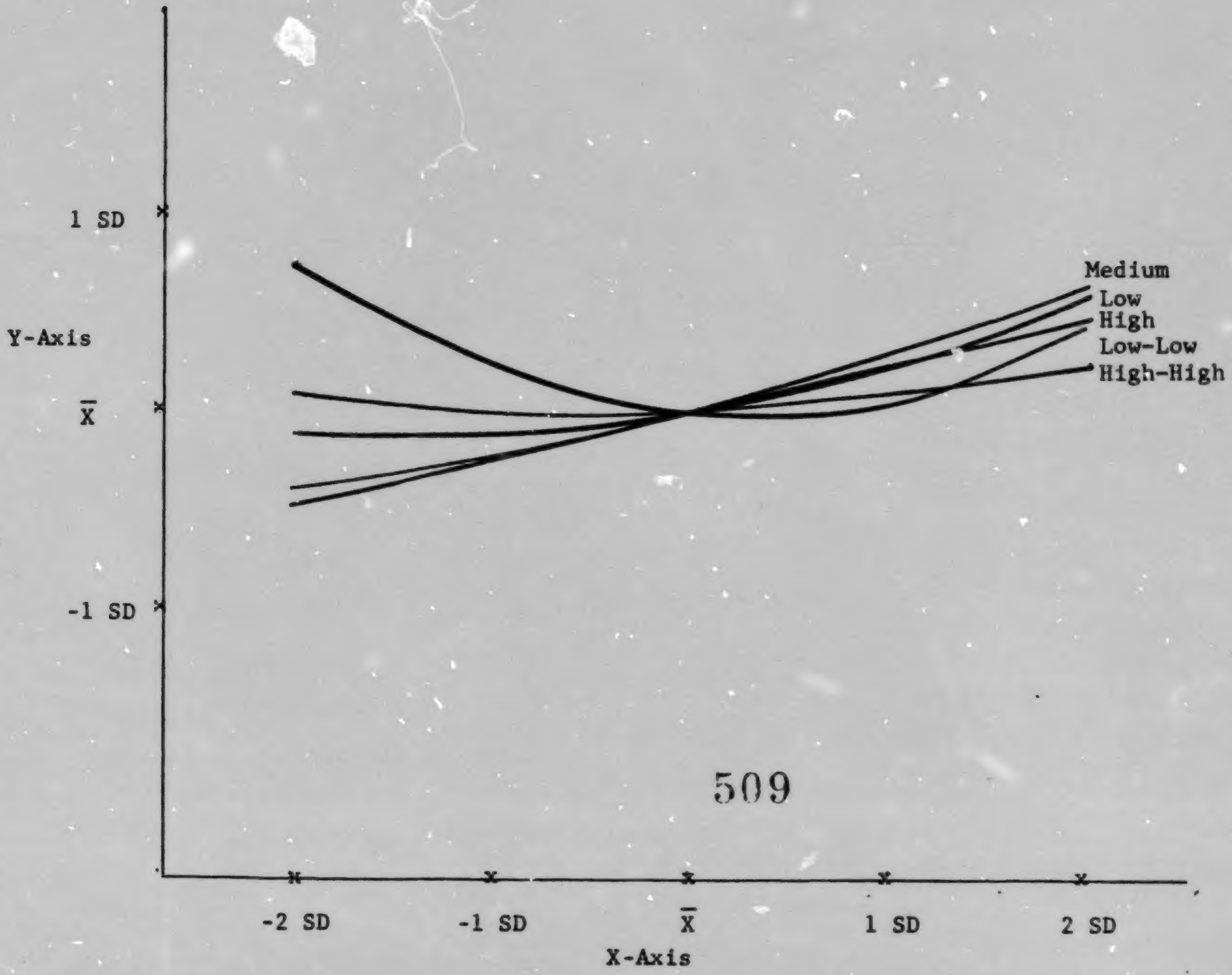
508

FIGURE V-54

Y-Axis (Criterion) SSI - att Post-pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-SO

Figure Number 5.1 - 7W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at



509

FIGURE V-55

Y-Axis (Criterion) SSI - att Post·pre

X-Axis (Predictor) SES

Grouped on COR-SO

Figure Number 5.1 - 6W

Figure ID

Table

Effect Pupil-L x Teacher-L+Q

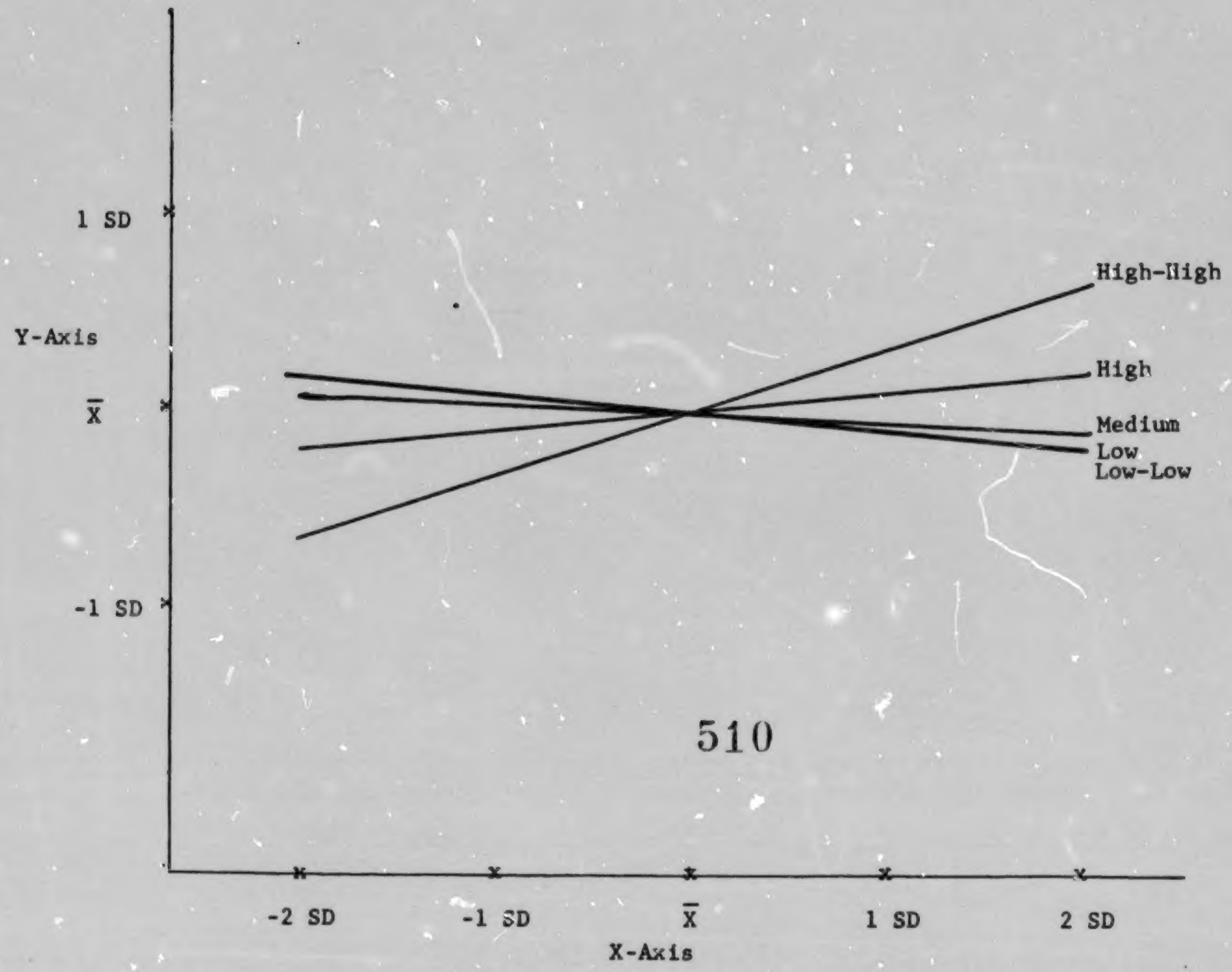
Year and site Austin I

Stage 5

Unit of Analysis Within-Class

Pretest controlled Yes

Multiple graph; X at

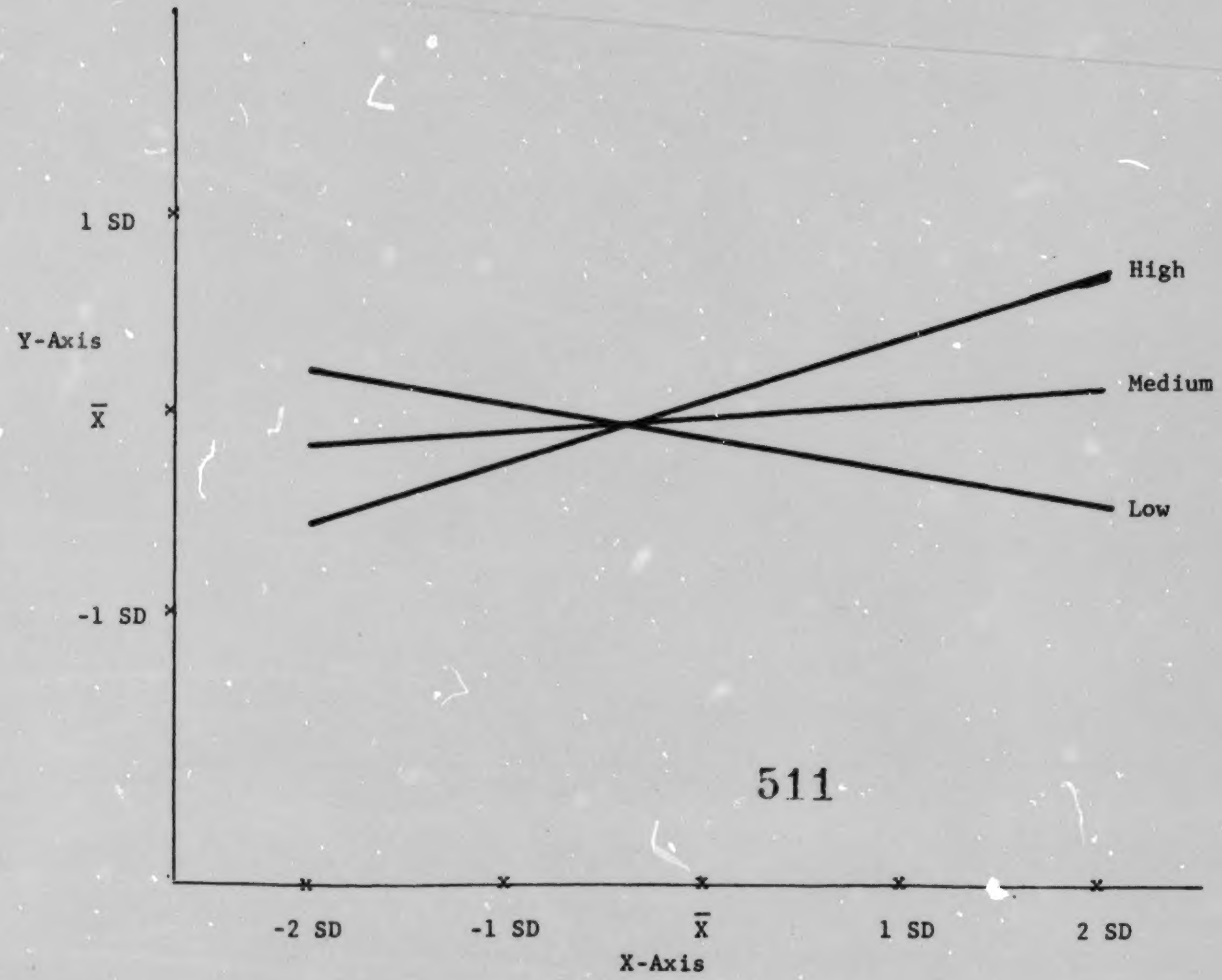


510

FIGURE V-56

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-SI
Figure Number 5.1 - 10B#1
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



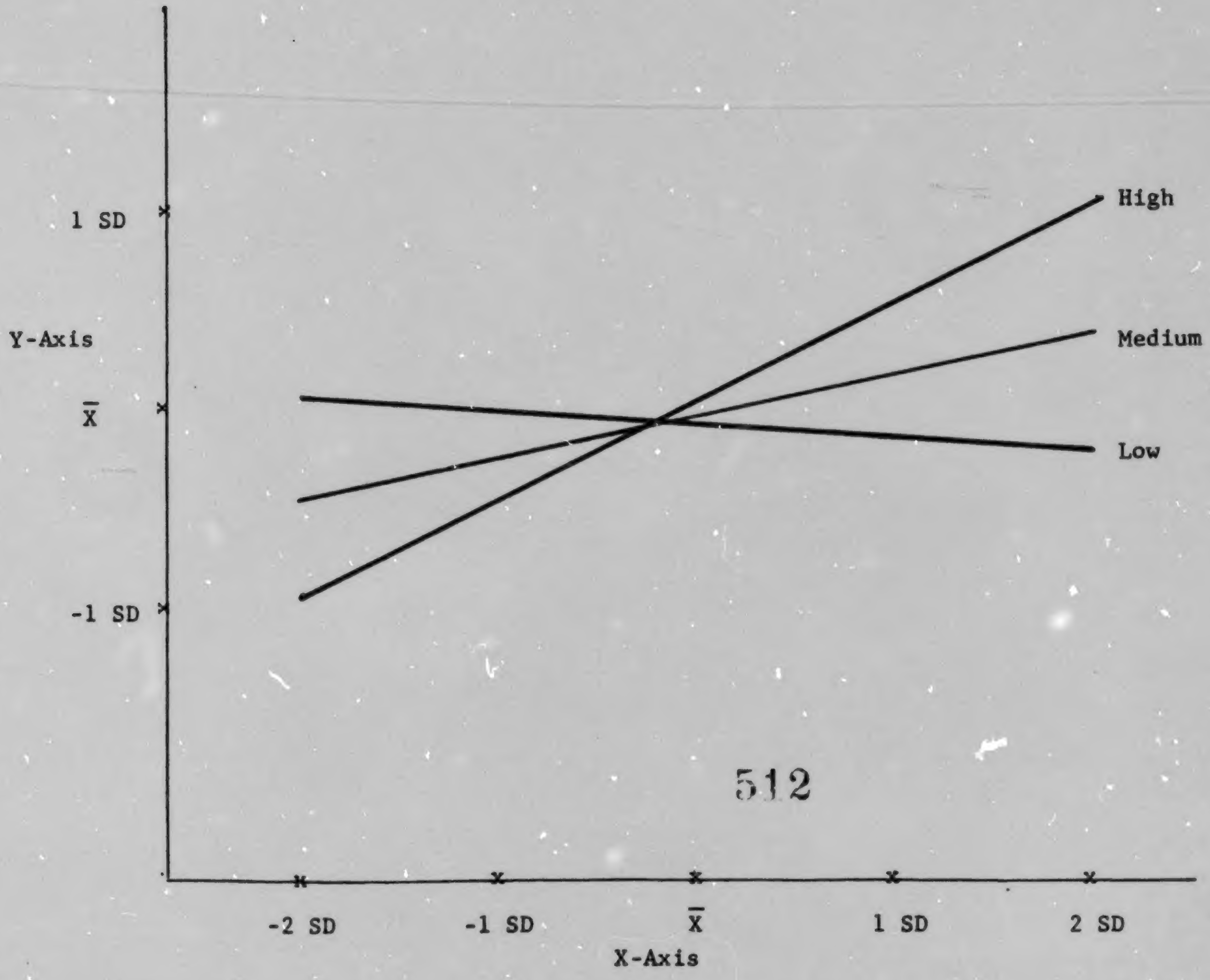
511

FIGURE V-57

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) SSC-Att
Grouped on COR-SI

Figure Number 5.1 - 12B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



512

FIGURE V-58

Y-Axis (Criterion)	SSI-Att Post.Pre	Figure Number	5.1 - 10B#2
X-Axis (Predictor)	SSC-Cop	Figure ID	
Grouped on	COR-SO	Table	

Effect Pupil-L x Teacher-L+Q
Year and site Austin I
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

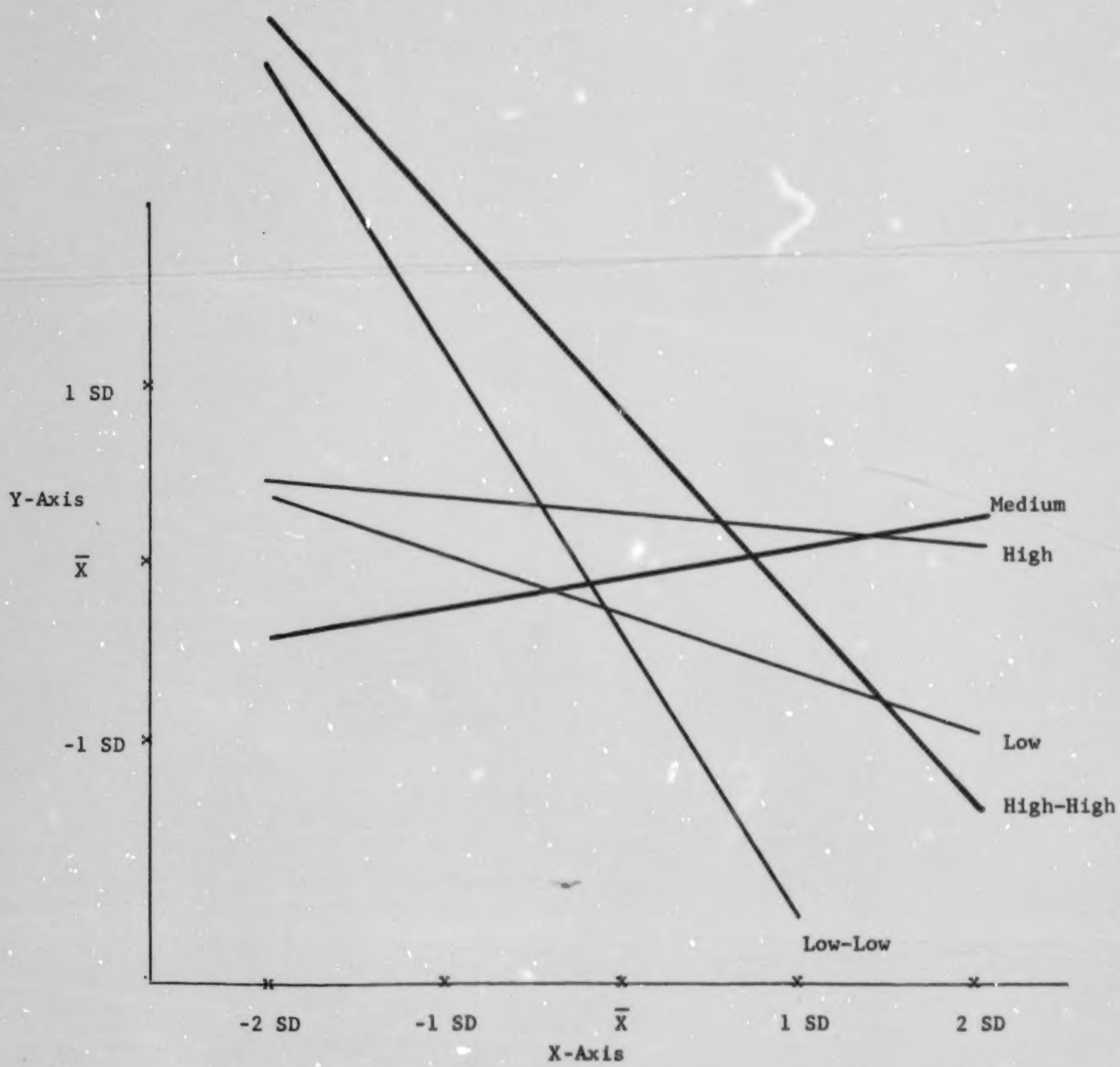


FIGURE V-59

Y-Axis (Criterion) SSI-Att Post.pre
X-Axis (Predictor) SES
Grouped on COR-SO

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 13B
Figure ID
Table

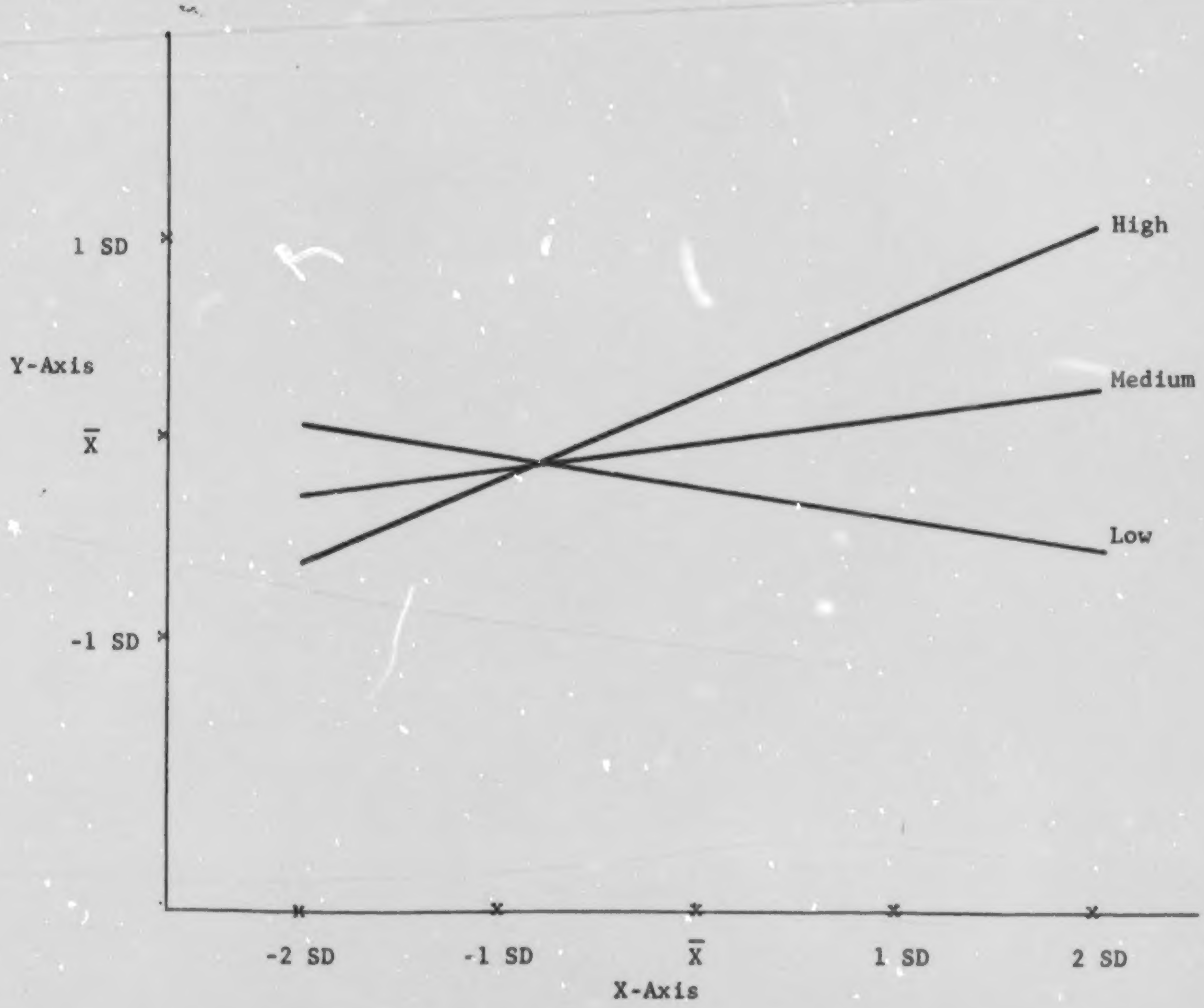
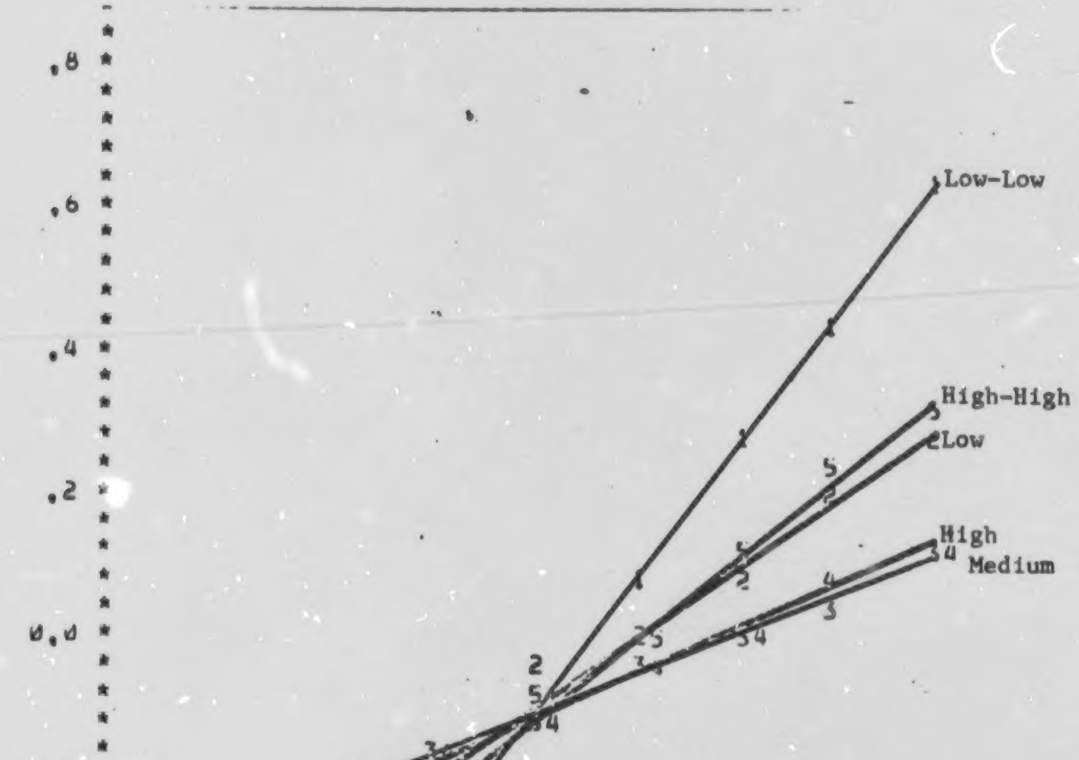


FIGURE V-60

Y-Axis (Criterion) SSI - att Post·pre
X-Axis (Predictor SSC - cop
Grouped on COR-Ku
Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 4
Unit of Analysis Within-class
Pretest controlled yes
Multiple graph; X at

Figure Number 5.2-8W
Figure ID
Table



515

FIGURE V-61

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) SET
Grouped on COR-KU
Effect Pre-L x Pupil-Q x Teacher -Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; +.5 SD

Figure Number 5.2- 9W#1
Figure ID
Table

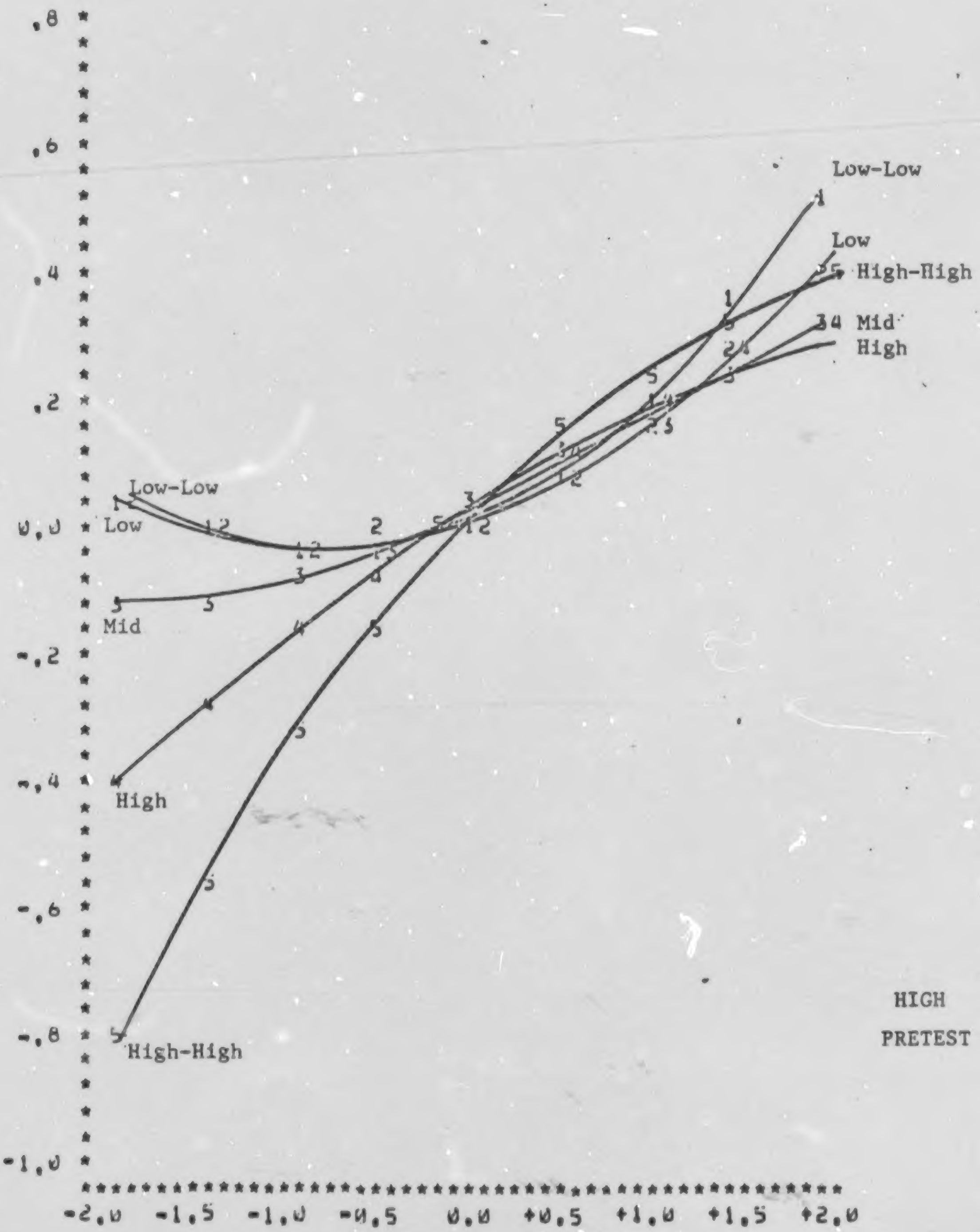


FIGURE V-62

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) SET
Grouped on COR-Ku
Effect Pre-L x Pupil-Q x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled yes
Multiple graph; X at -.5 SD

Figure Number 5.2 - 9W#2
Figure ID
Table

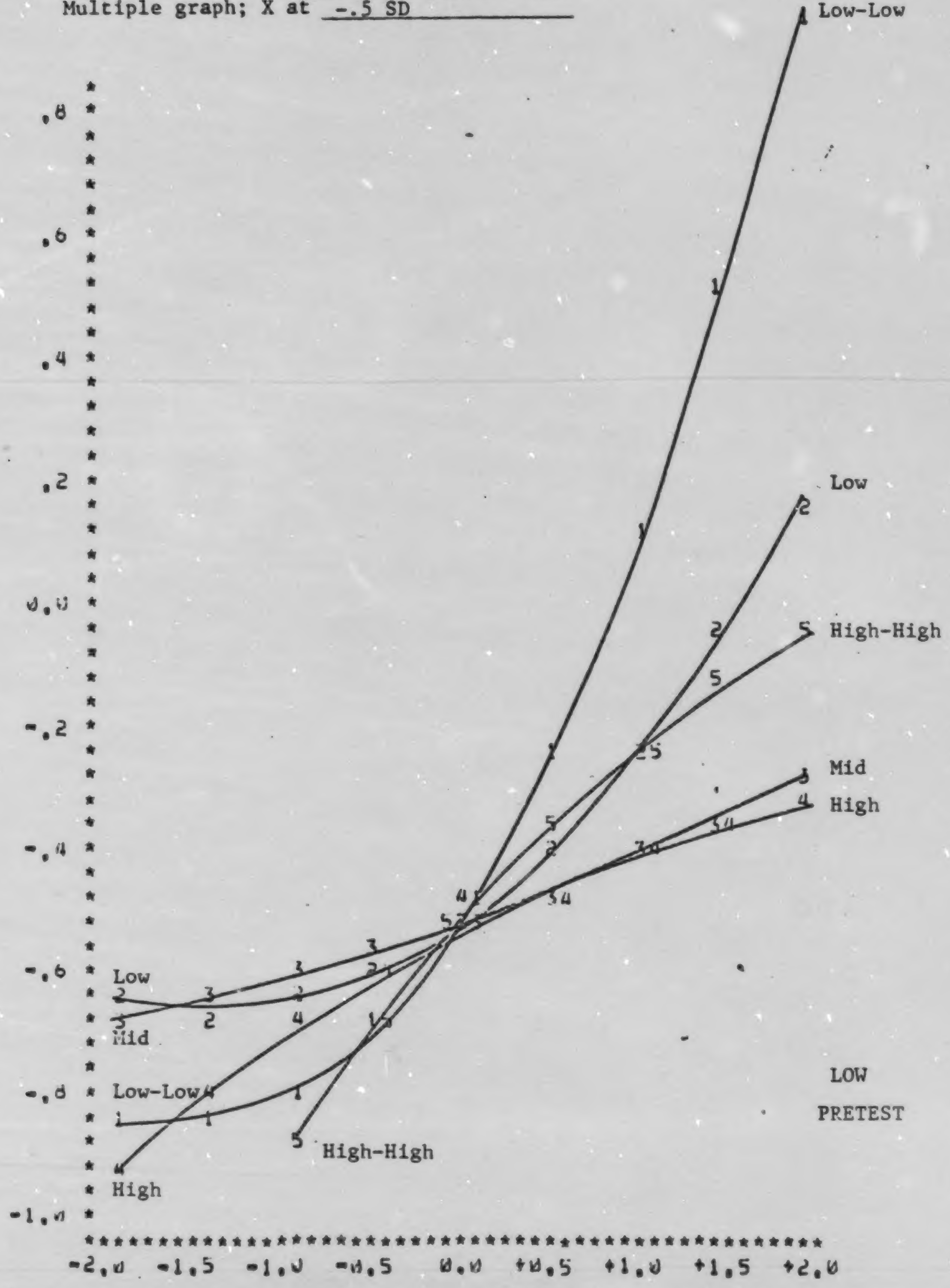


FIGURE V-63

Y-Axis (Criterion) SSI - att Post•pre
X-Axis (Predictor) SSC - att
Grouped on COR - Ku

Figure Number 5.2 - 10W #1
Figure ID
Table

Effect Pre-L x Pupil-Q x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled yes
Multiple graph; X at + .5 SD

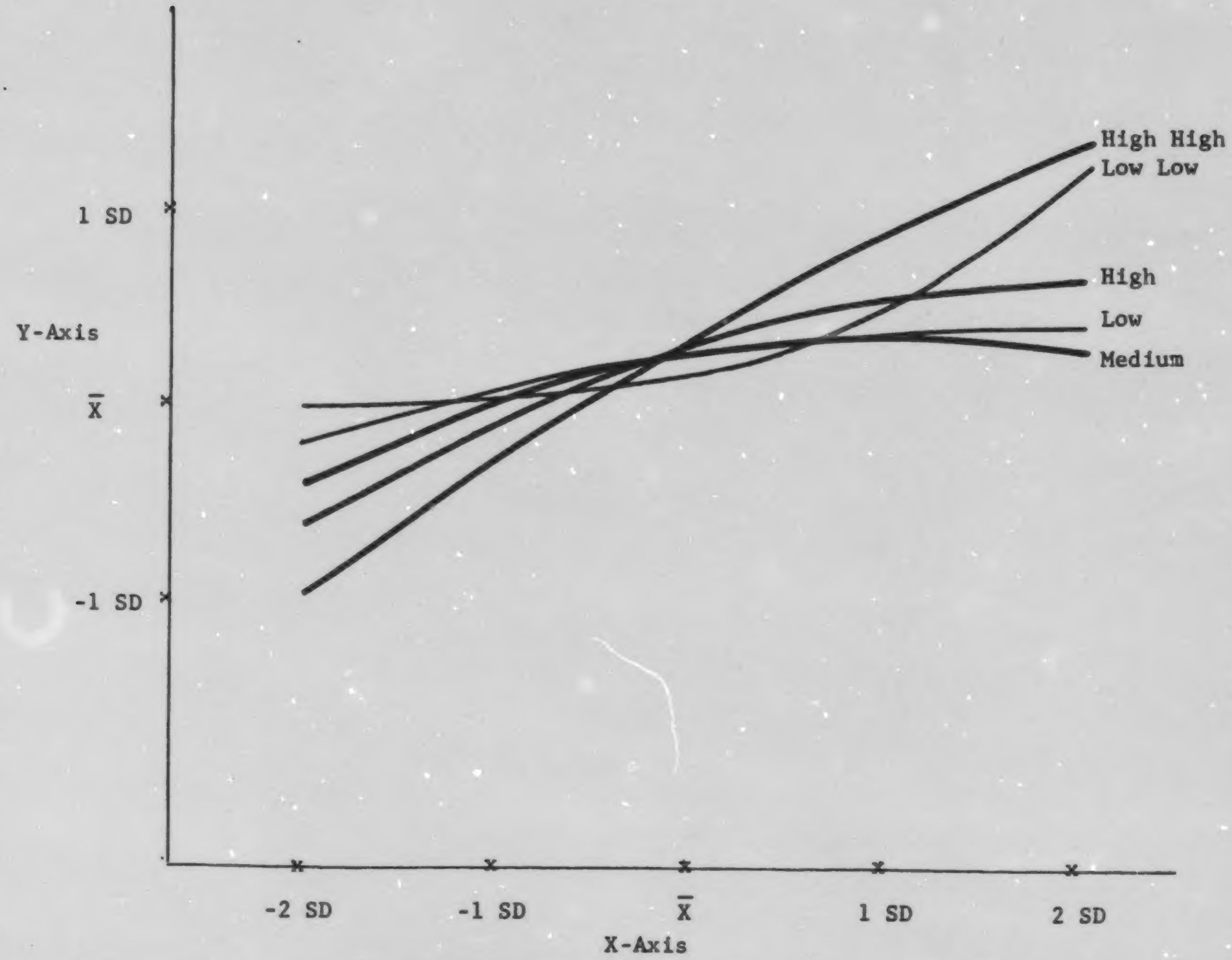


FIGURE V-64

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) SSC - att
Grouped on COR - Ku

Figure Number 5.2 - 10W#2
Figure ID
Table

Effect Pre-L x Pupil-Q x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; X at -.5 SD

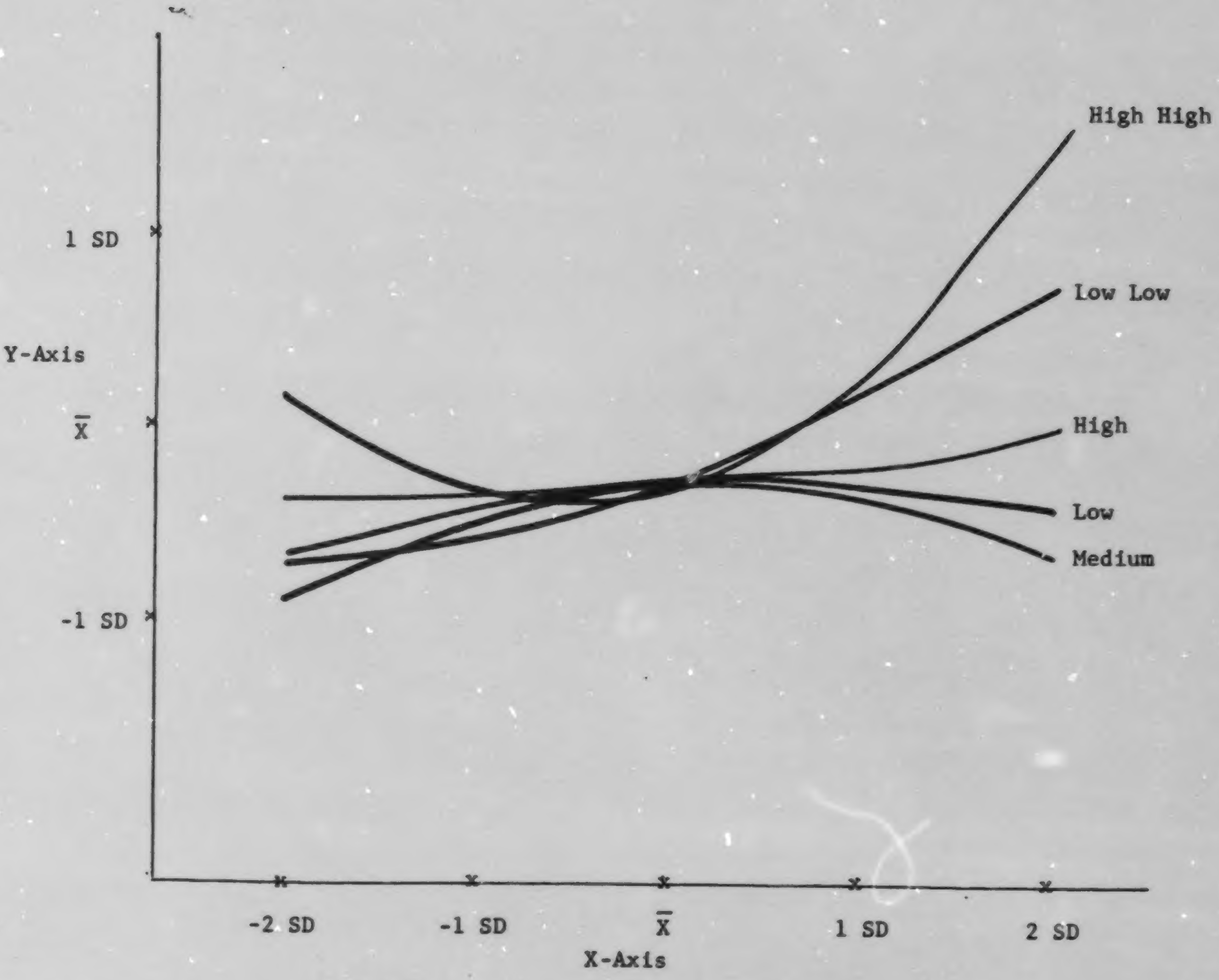


FIGURE V-65

Y-Axis (Criterion) SSI - att Post•pre

X-Axis (Predictor) BRS-SR (cop)

Grouped on COR-Ku

Figure Number 5.2 - 11W

Figure ID

Table

Effect Pupil-Q x Teacher-Q

Year and site Austin 2

Stage 5

Unit of Analysis Within-class

Pretest controlled Yes

Multiple graph; X at

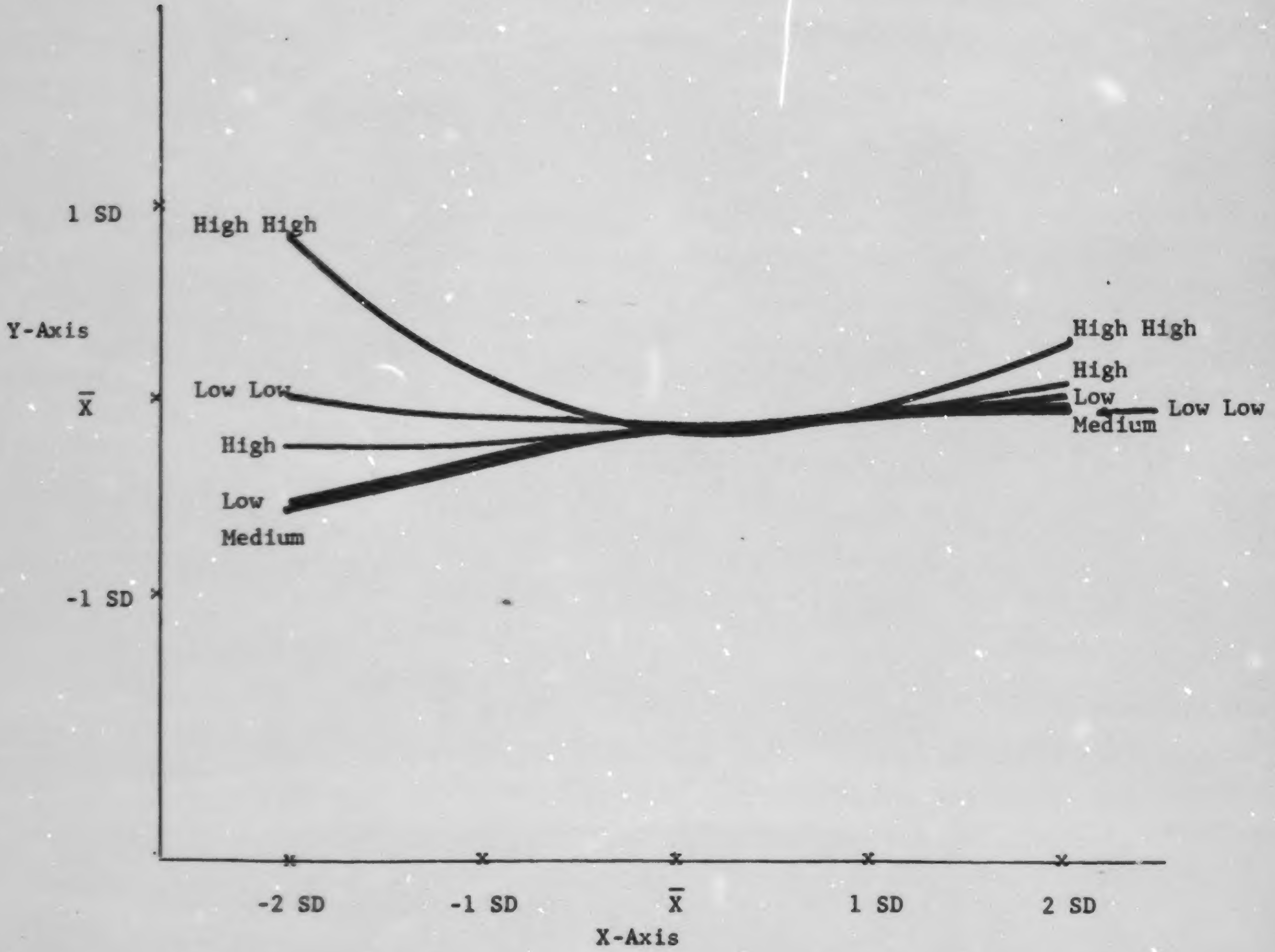
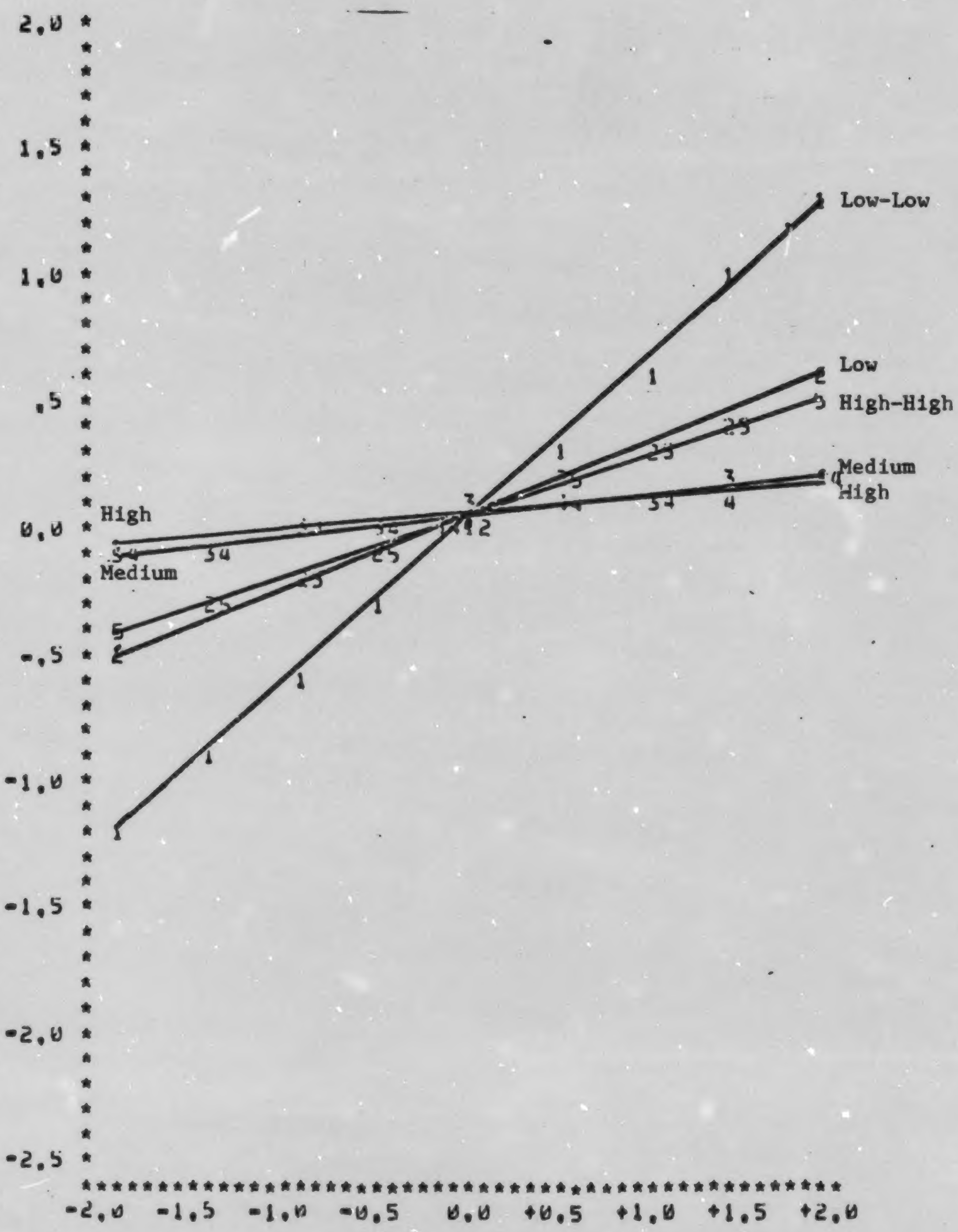


FIGURE V-66

Y-Axis (Criterion) SSI - att. Post·pre
X-Axis (Predictor) SET
Grouped on COR-SI
Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2 - 15W
Figure ID
Table



521

FIGURE V-67

Y-Axis (Criterion) SSI - att Post
X-Axis (Predictor) SSI - att Pre
Grouped on COR-SO

Figure Number 5.2 - 13W
Figure ID
Table

Effect Pre-L x Teacher-L+Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; X at

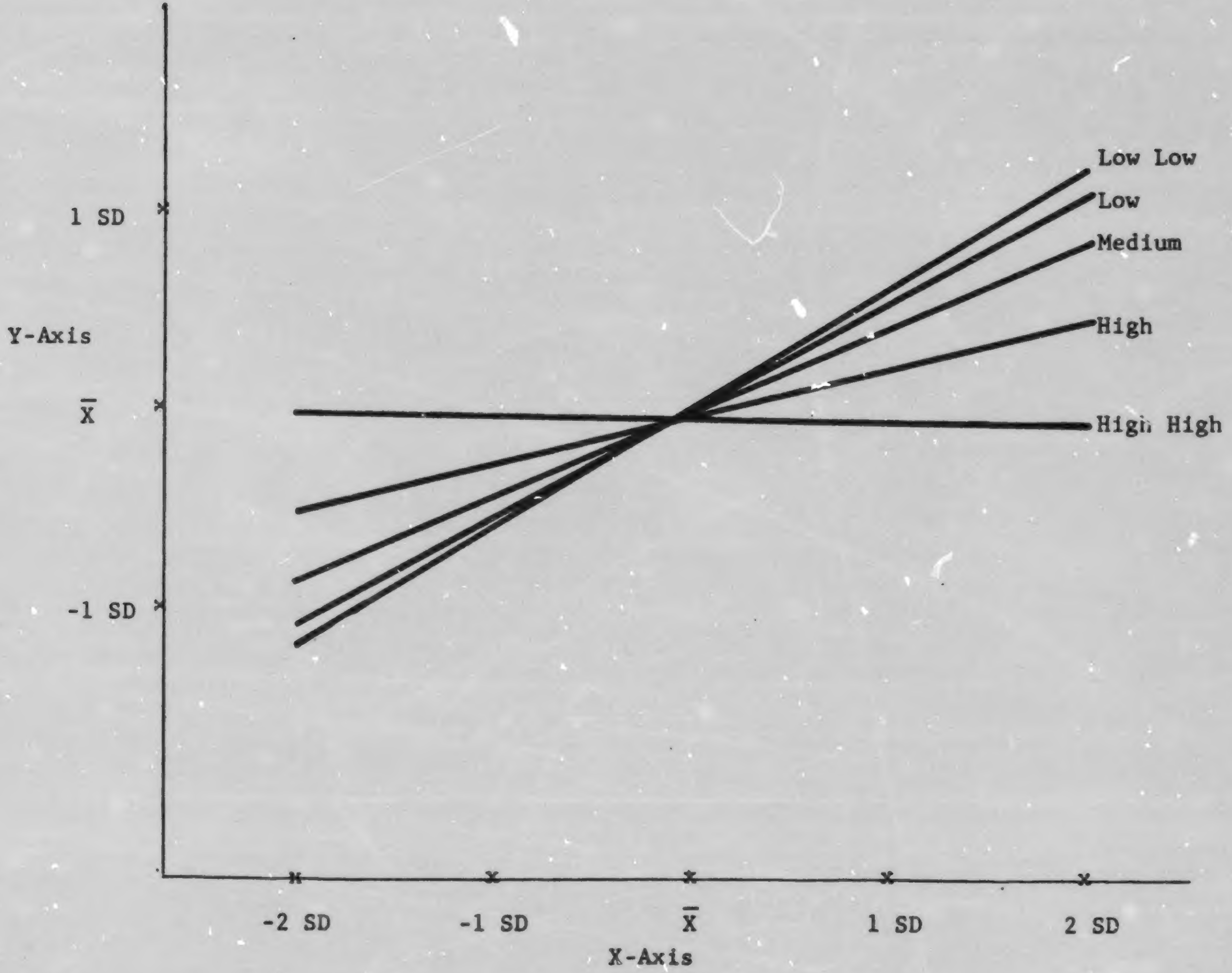


FIGURE V-68

Y-Axis (Criterion) SSI - att Post. pre
X-Axis (Predictor) SSC - att
Grouped on COR-SO

Figure Number 5.2 - 14W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; X at

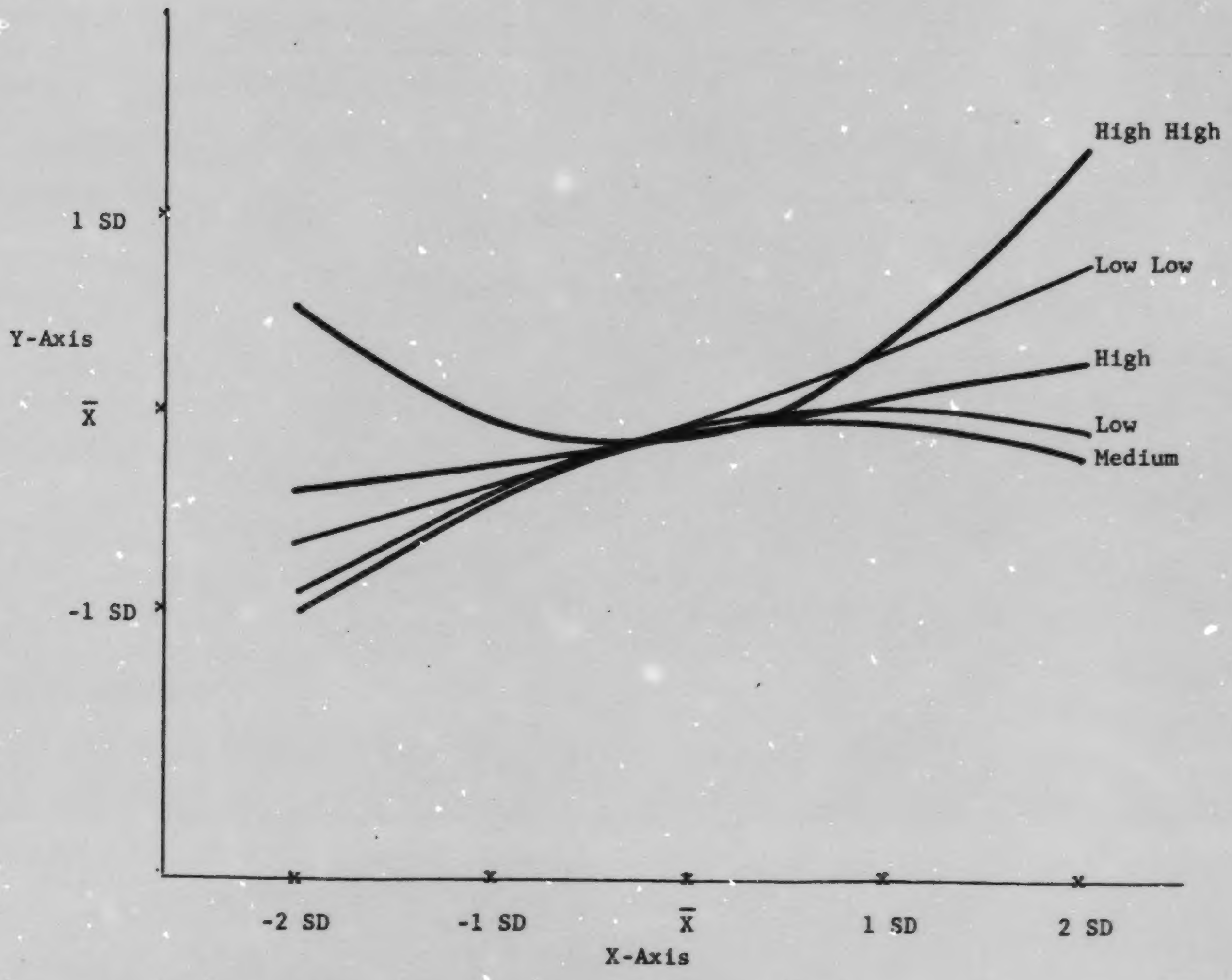


FIGURE V-69

Y-Axis (Criterion) SSI - att Post·pre
X-Axis (Predictor) HOW - CL
Grouped on COR-SO

Effect Pupil-L x Teacher -L+Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled yes
Multiple graph; X at

Figure Number 5.2 - 12W
Figure ID
Table

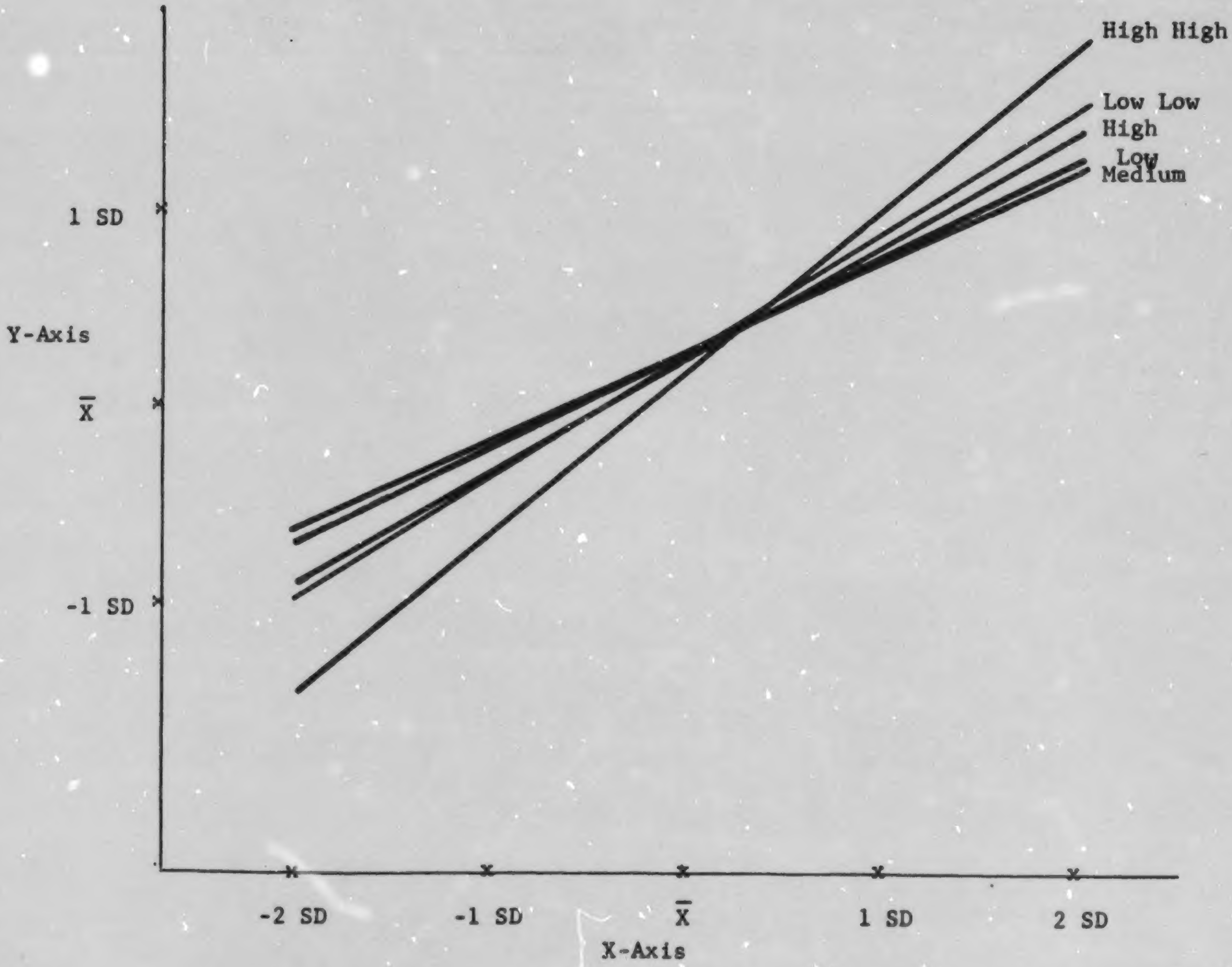


FIGURE V-70

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on COR-KU

Figure Number 5.2 - 10B
Figure ID
Table

Effect Pre-L x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

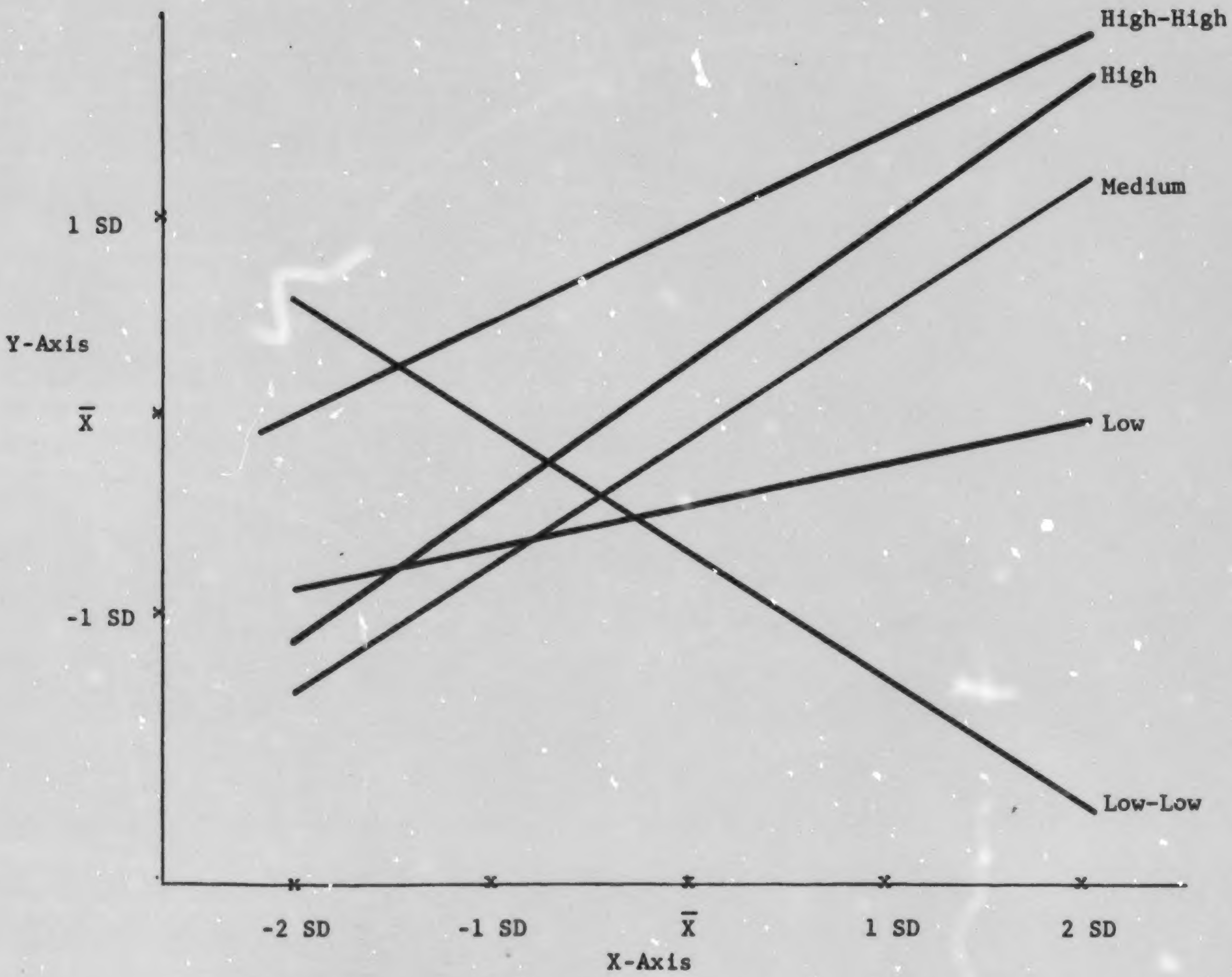


FIGURE V-71

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) SSC-Att
Grouped on COR-KU

Figure Number 5.2 - 11B
Figure ID
Table

Effect Pupil-L x Teacher-L+Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

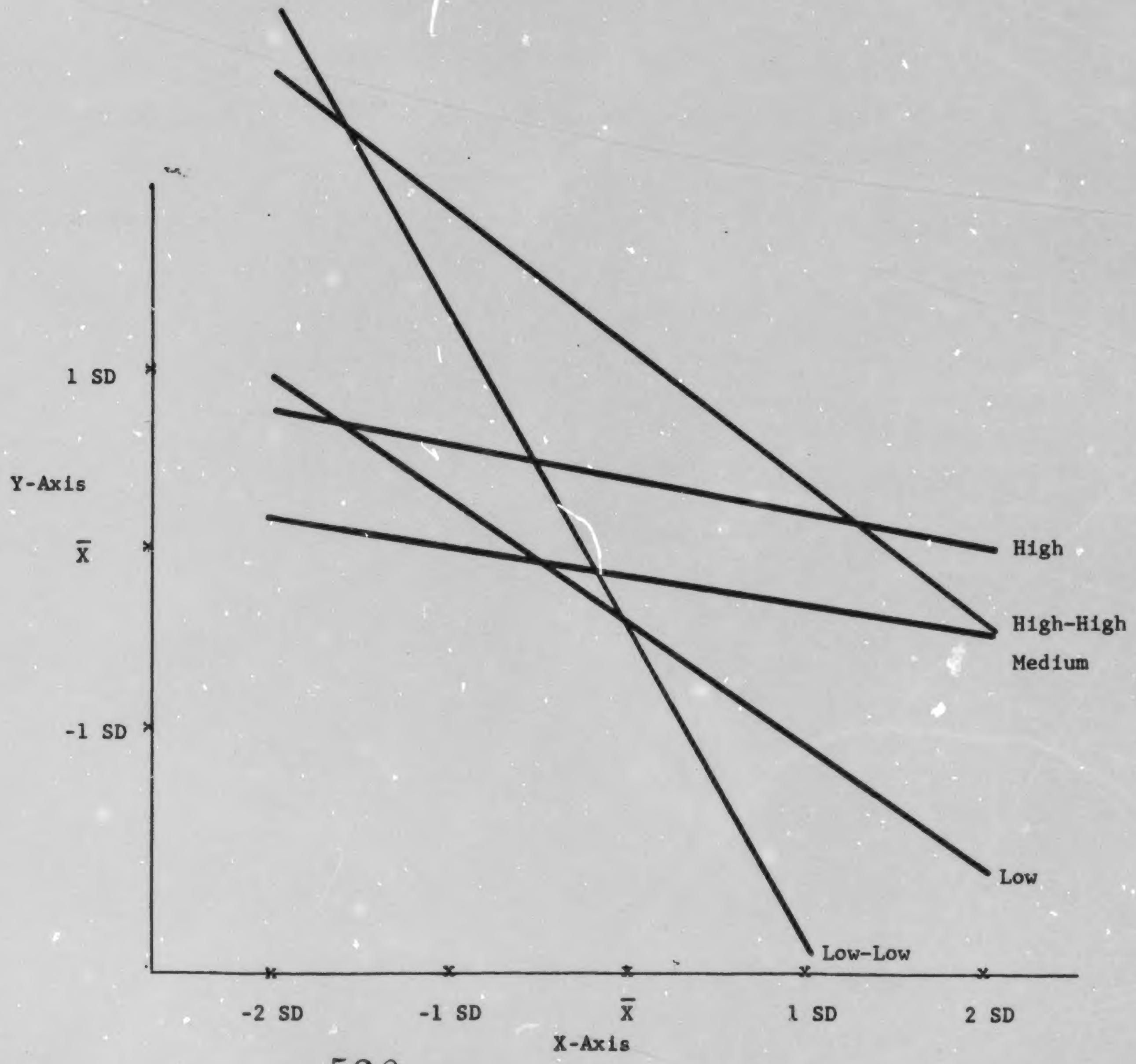


FIGURE V-72

Y-Axis (Criterion)	SSI-Att Post.Pre
X-Axis (Predictor)	SSC-Cop
Grouped on	COR-KU
Figure Number	5.2 - 12B
Figure ID	
Table	

Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

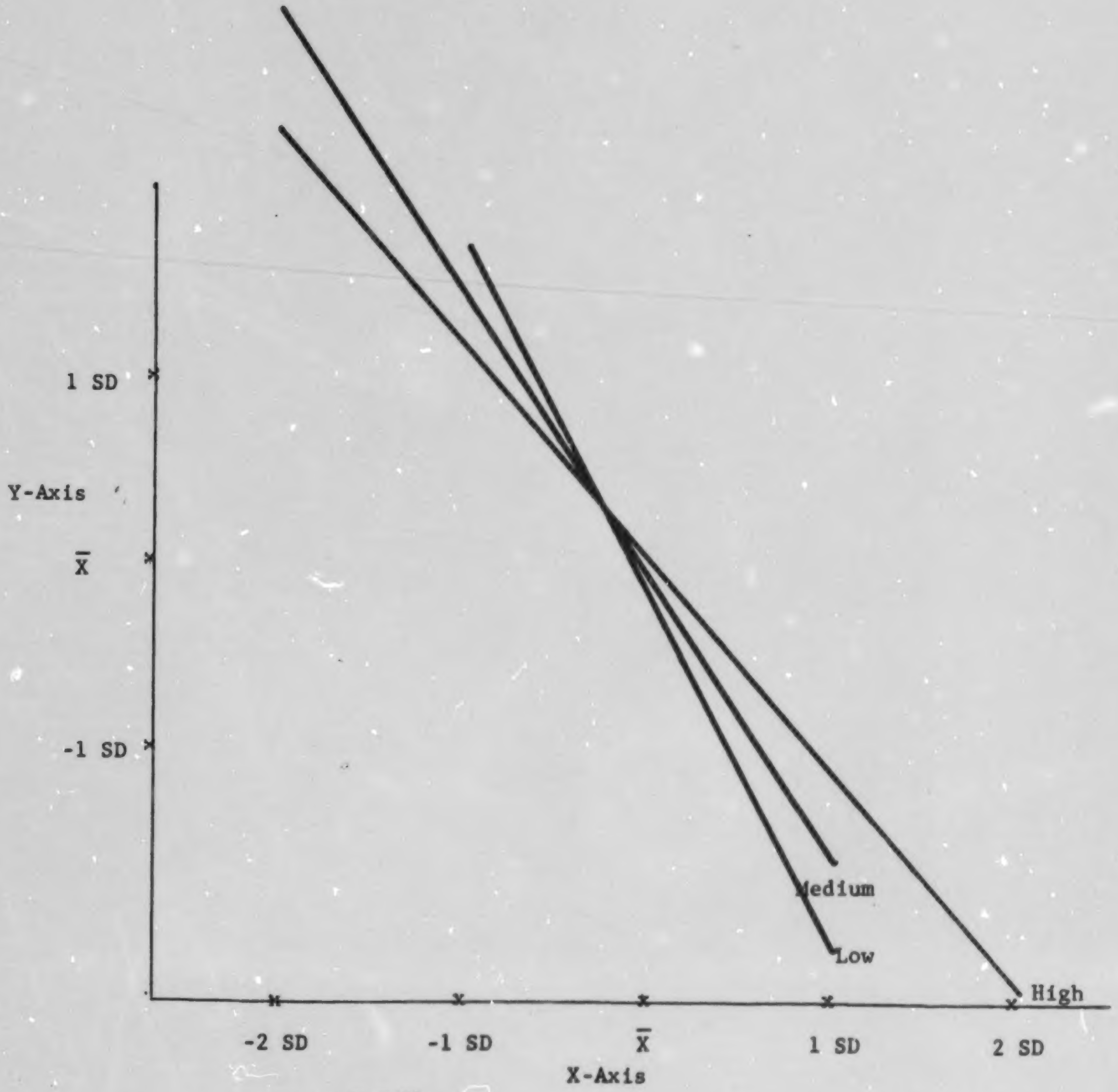


FIGURE V-73

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) BRS-OR Cop
Grouped on COR-SO

Figure Number 5.2 - 14B
Figure ID
Table

Effect Pupil-L x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

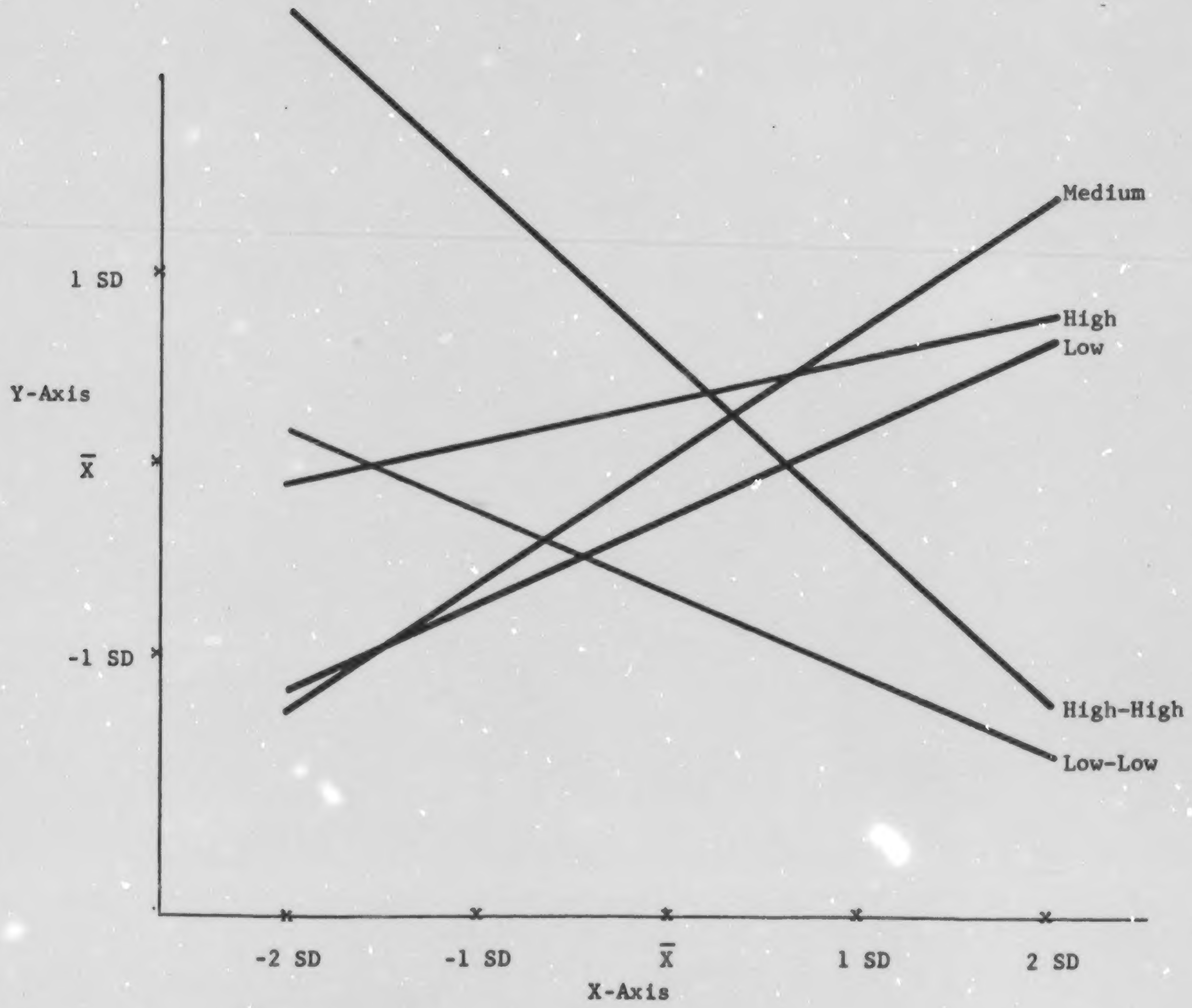


FIGURE V-74

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) Self-Est (SSD)
Grouped on COR-SO

Effect Pupil-L x Teacher-L +Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2 - 15B
Figure ID
Table

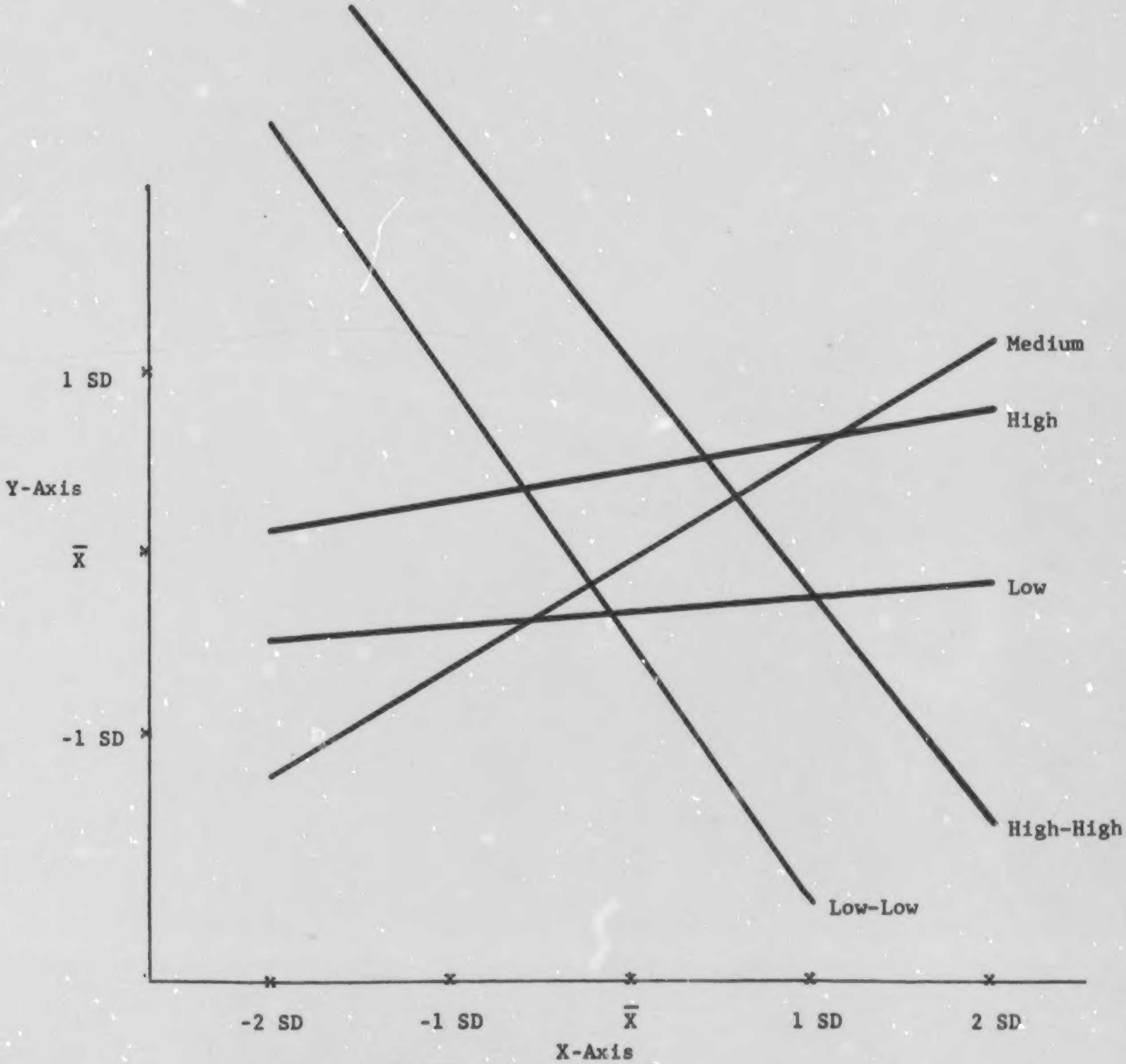
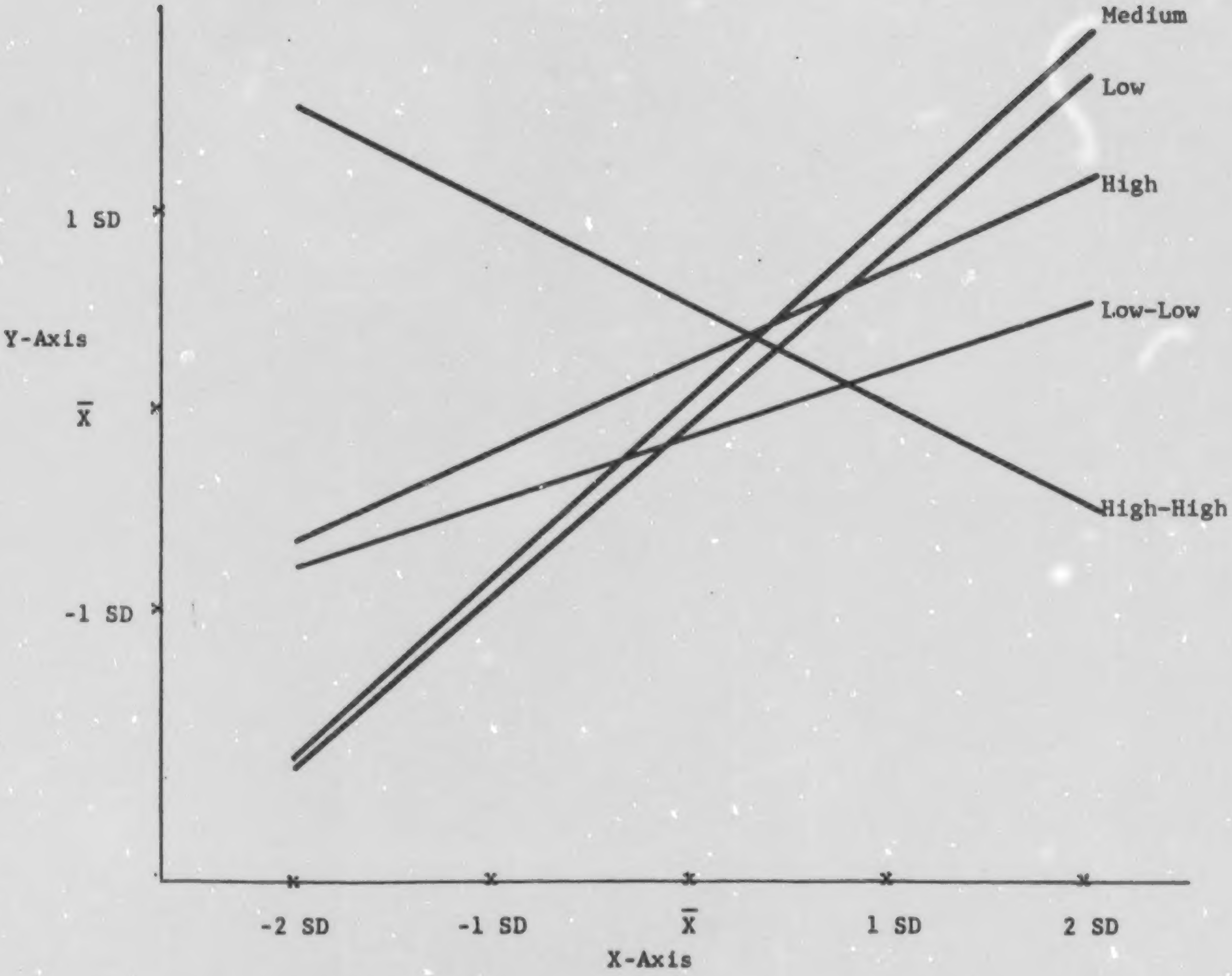


FIGURE V-75

Y-Axis (Criterion) SSI-Att Post.Pre
X-Axis (Predictor) HOW
Grouped on COR-SO

Effect Pupil-L x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.2 - 13B
Figure ID
Table



530

FIGURE V-76

Y-Axis (Criterion) SSI-Att Post.Pre

X-Axis (Predictor) SES

Grouped on COR-SO

Figure Number 5.2 - 16B

Figure ID

Table

Effect Pupil-L x Teacher-Q

Year and site Austin 2

Stage 5

Unit of Analysis Between-Class

Pretest controlled Yes

Multiple graph; X at

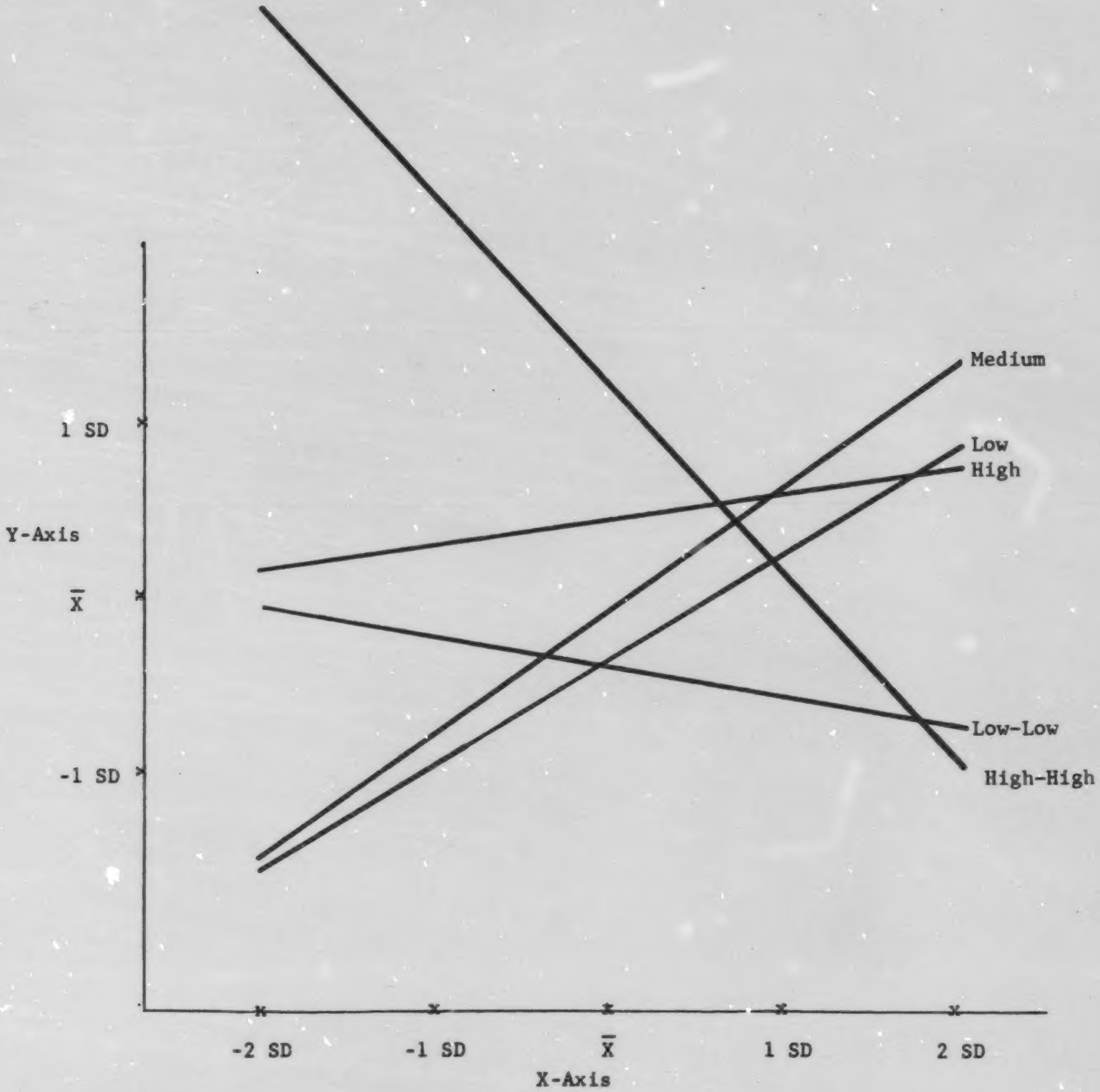


FIGURE V-77

Y-Axis (Criterion) SSI - att Post·pre
X-Axis (Predictor) BRS-OR (cop)
Grouped on COR- SO

Figure Number K5.1 - 3B
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

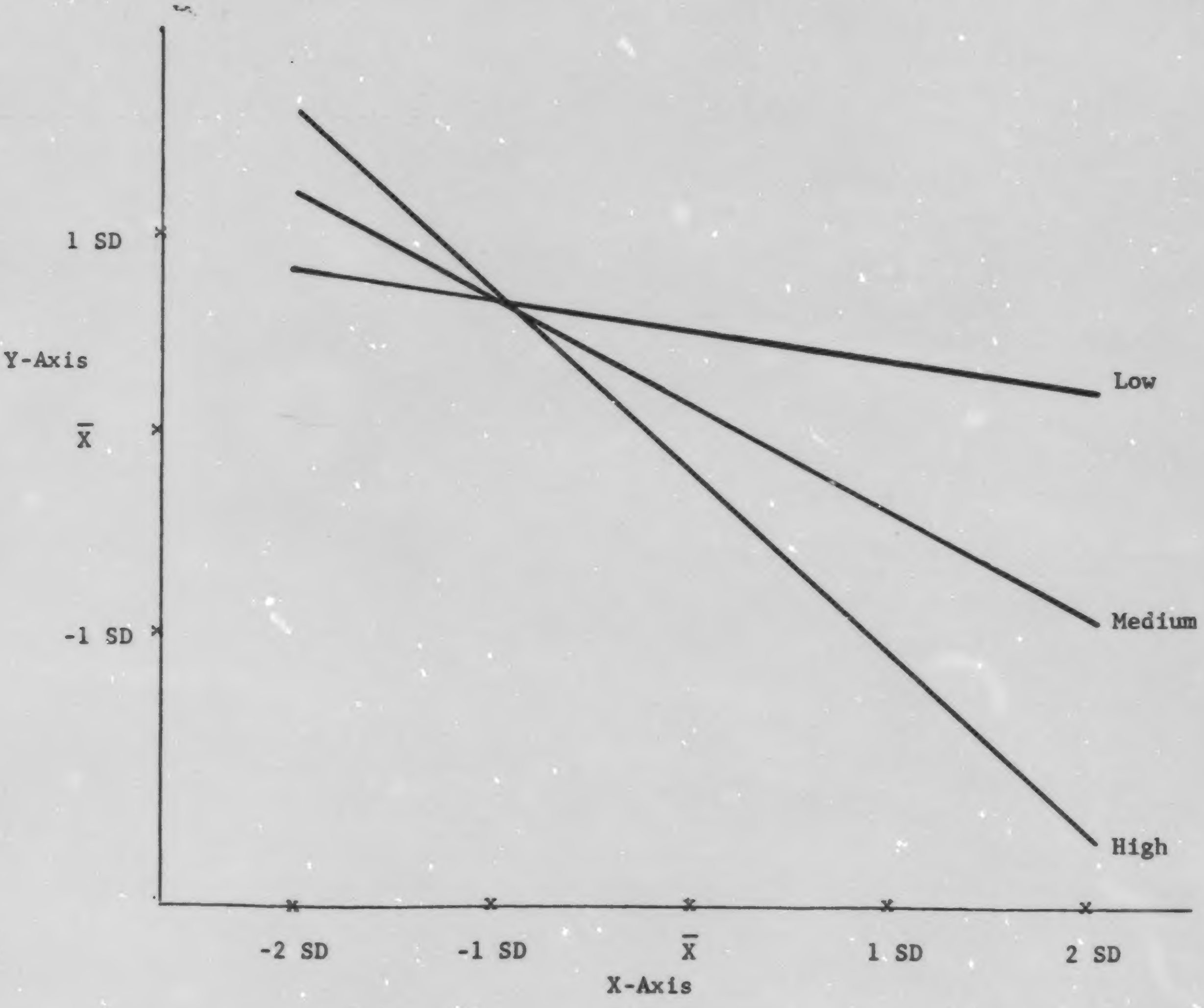
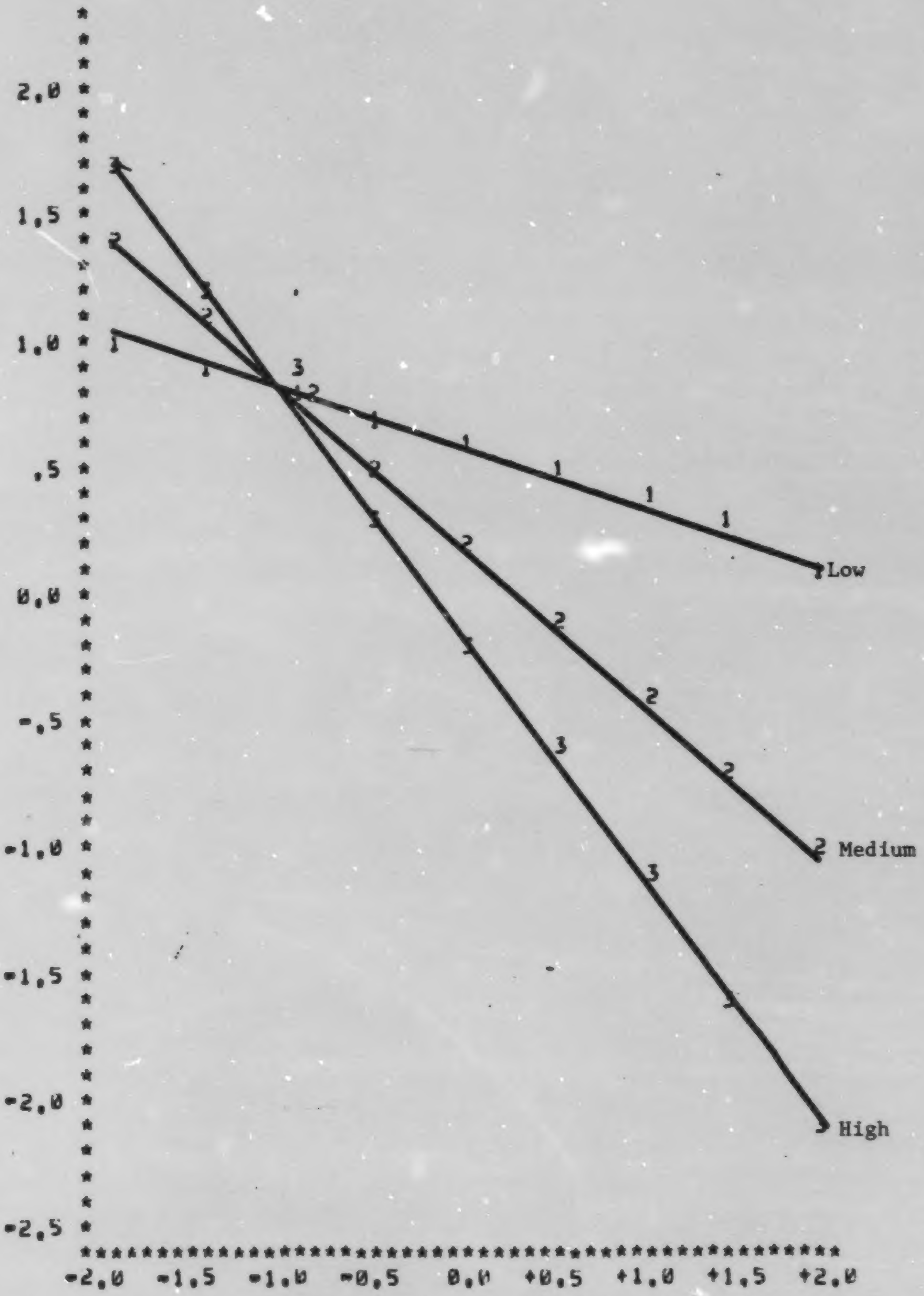


FIGURE V-78

Y-Axis (Criterion) SSI - att Post.pre
X-Axis (Predictor) SET
Grouped on COR-SO
Figure Number K5.1 - 43
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



533

FIGURE V-79

Y-Axis (Criterion) SSI - att Post
X-Axis (Predictor) SSI - att Pre
Grouped on COR-SI

Effect Pre-L x Teacher-Q
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number K5.1 - 5B
Figure ID
Table

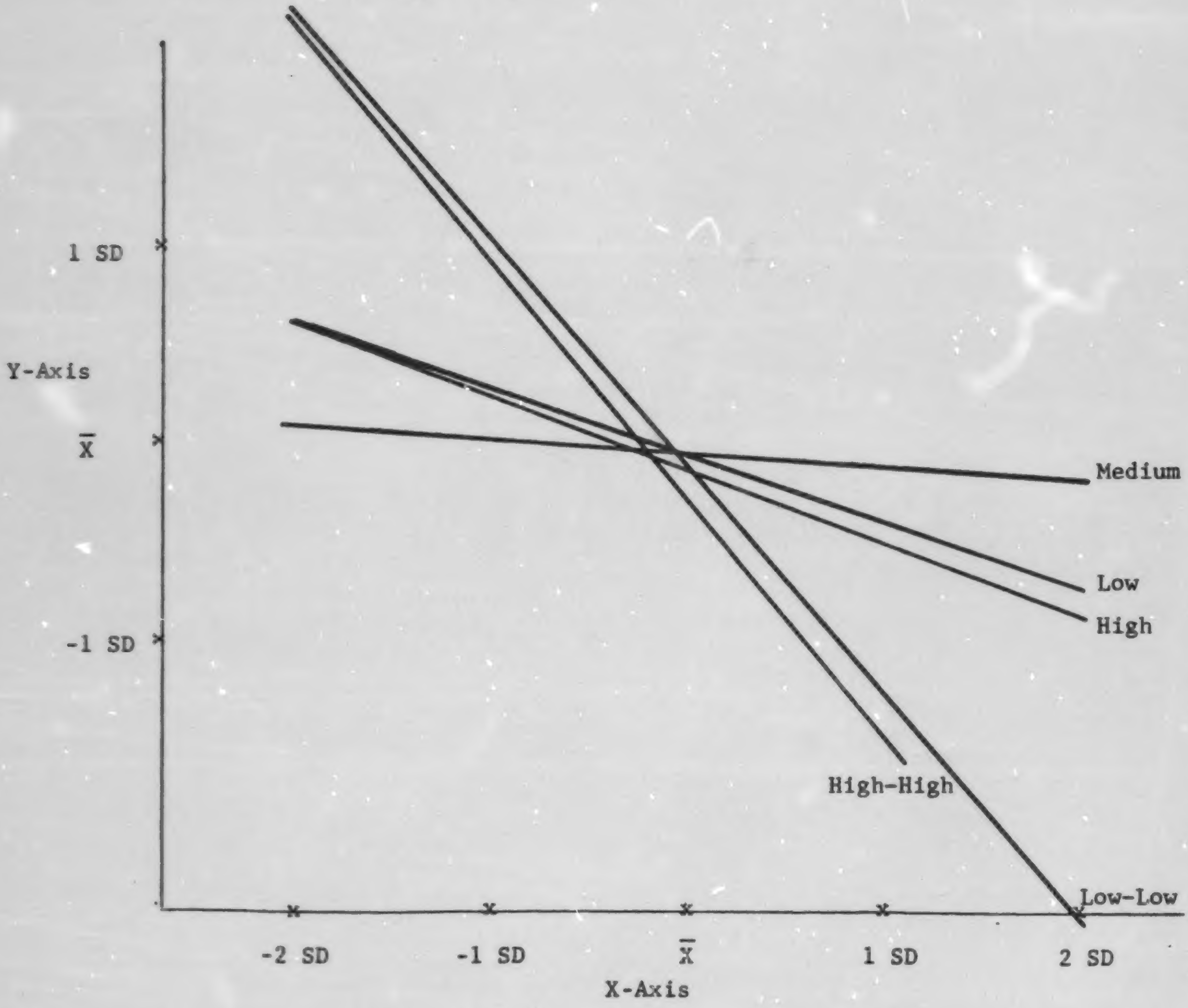


FIGURE V-80

Y-Axis (Criterion) SSI - att Post•pre
X-Axis (Predictor) SSC-Cop
Grouped on COR-SI

Figure Number K5.1 - 6B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

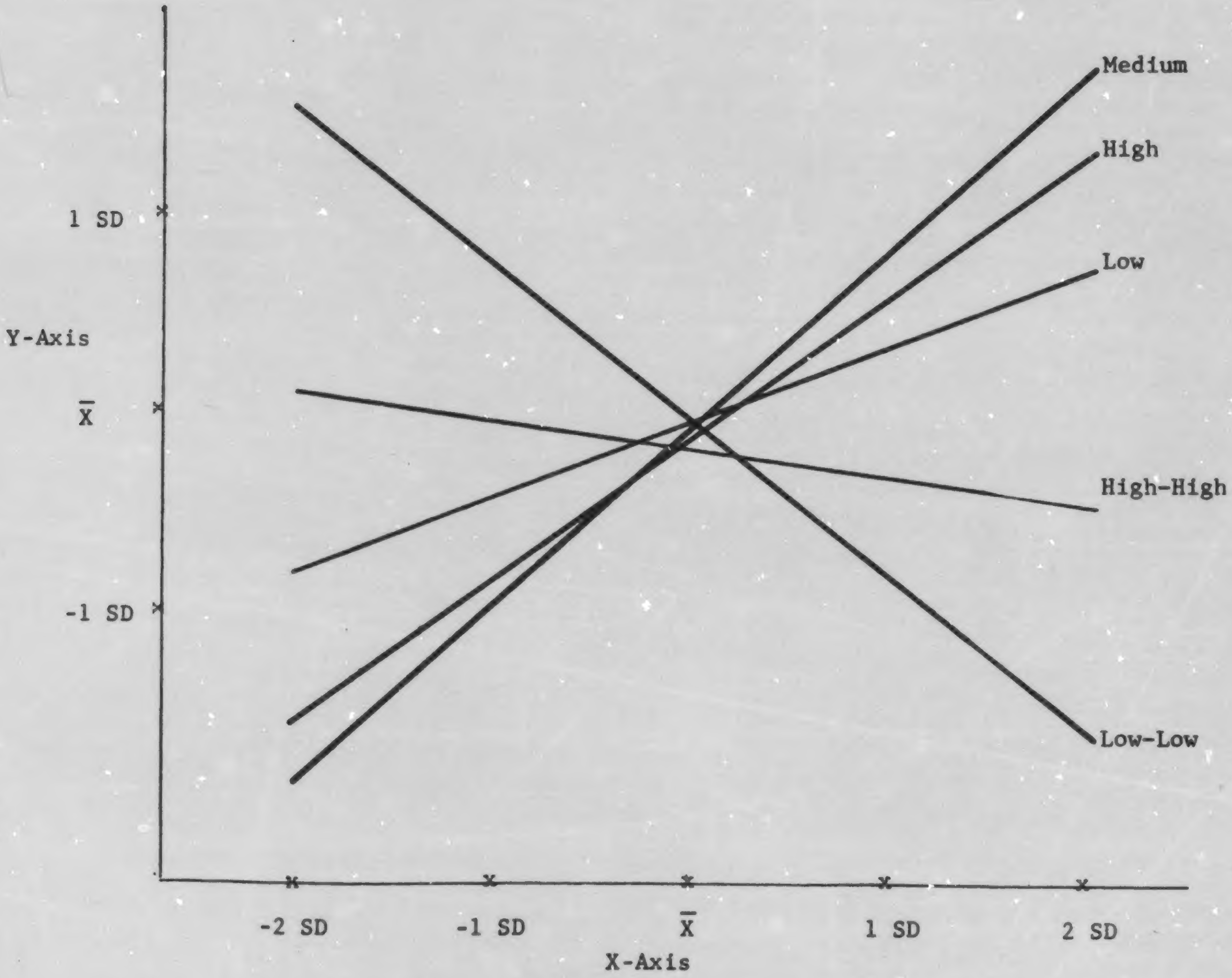


FIGURE V-81

Y-Axis (Criterion) SSI - att Post·pre
X-Axis (Predictor) SSC - att
Grouped on COR-SI

Figure Number K5.1 - 7B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

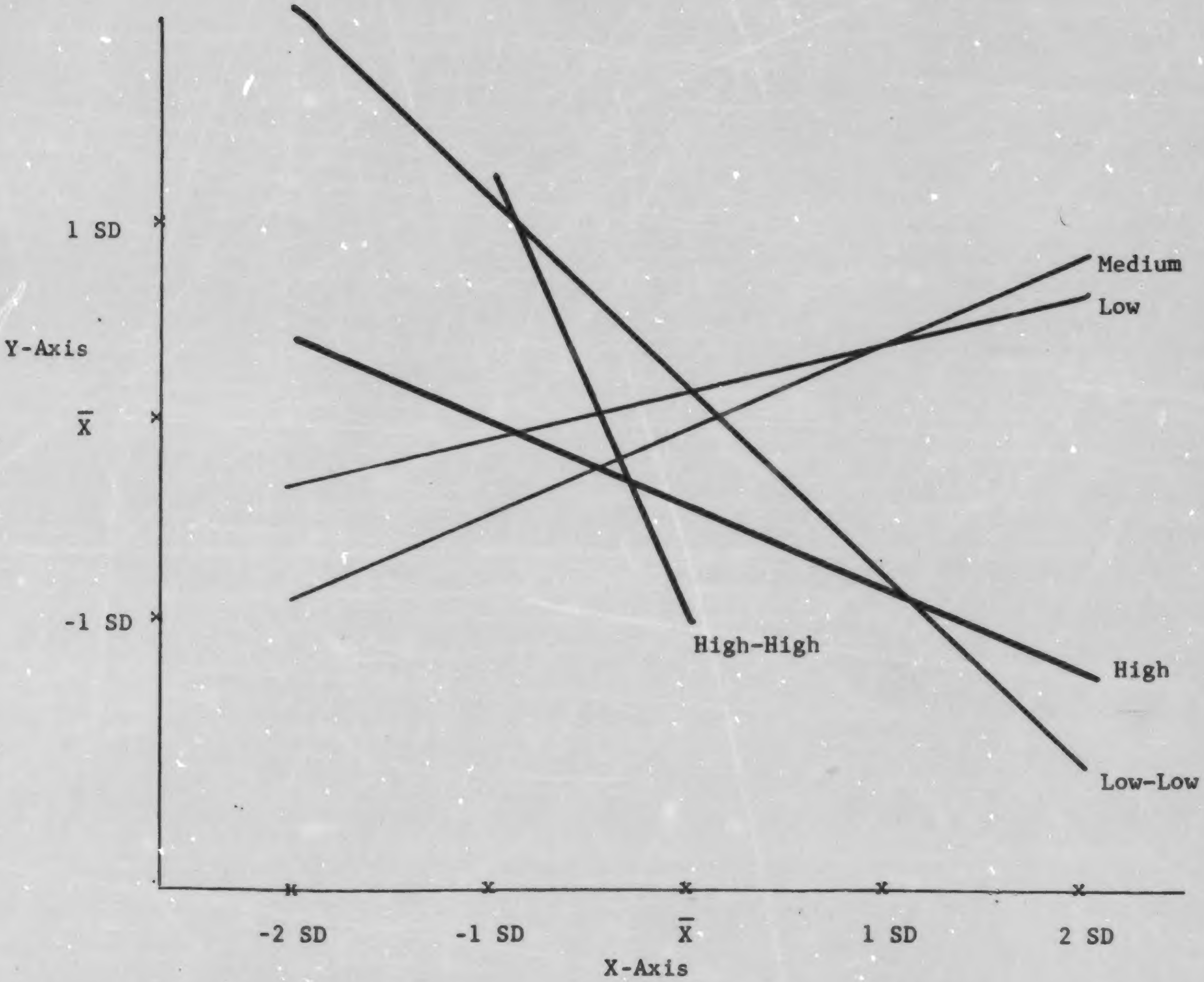


FIGURE V-82

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) COR-SI
Grouped on
Figure Number 4.1 - 10B
Figure ID
Table

Effect Teacher-Q
Year and site Austin 1
Stage 4
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

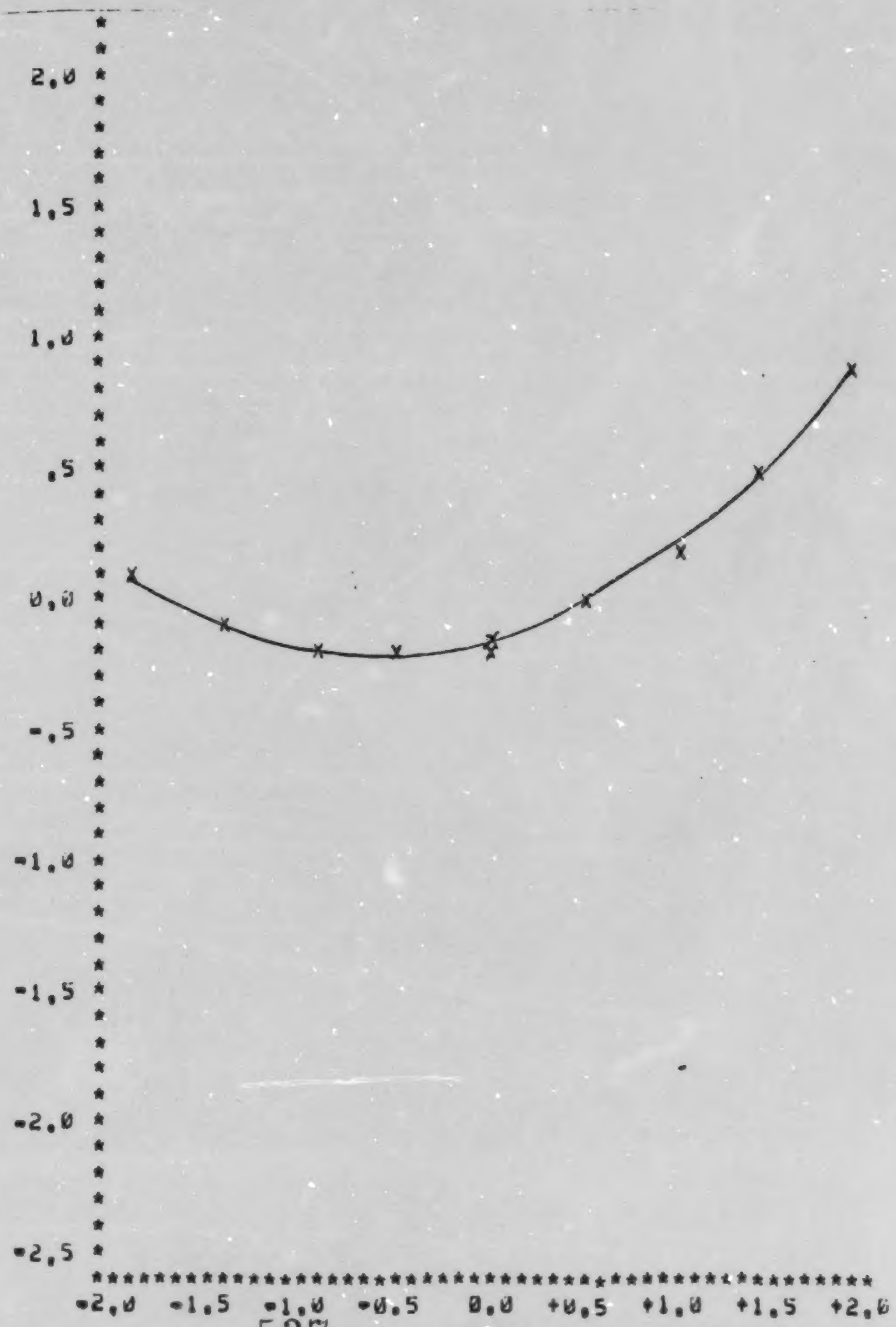


FIGURE V-83

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on COR-SO

Figure Number 5.1 - 5B
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

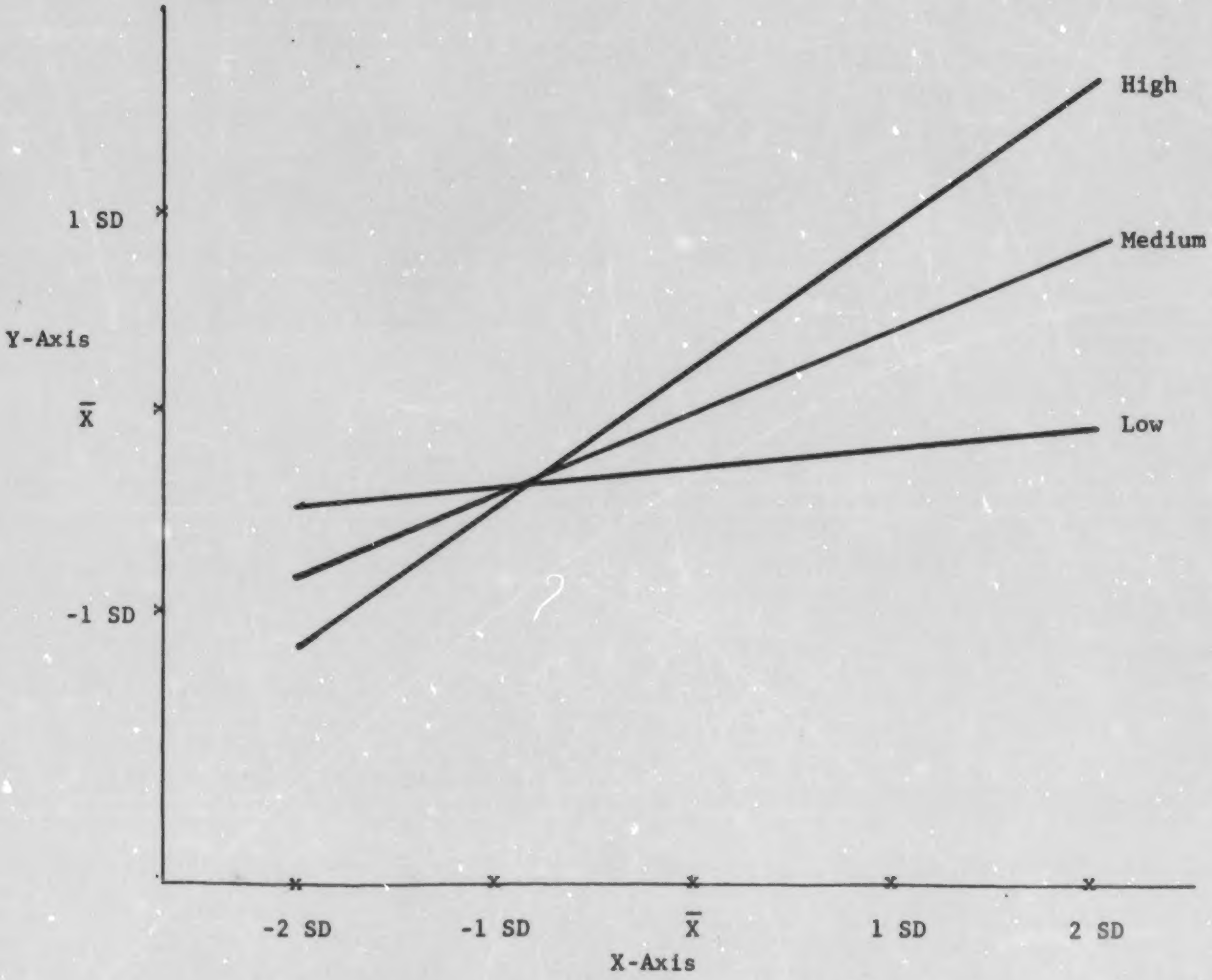


FIGURE V-84

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on COR-KU

Figure Number 5.1 - 1B
Figure ID
Table

Effect Pre-L x Teacher-L
Year and site Austin I
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

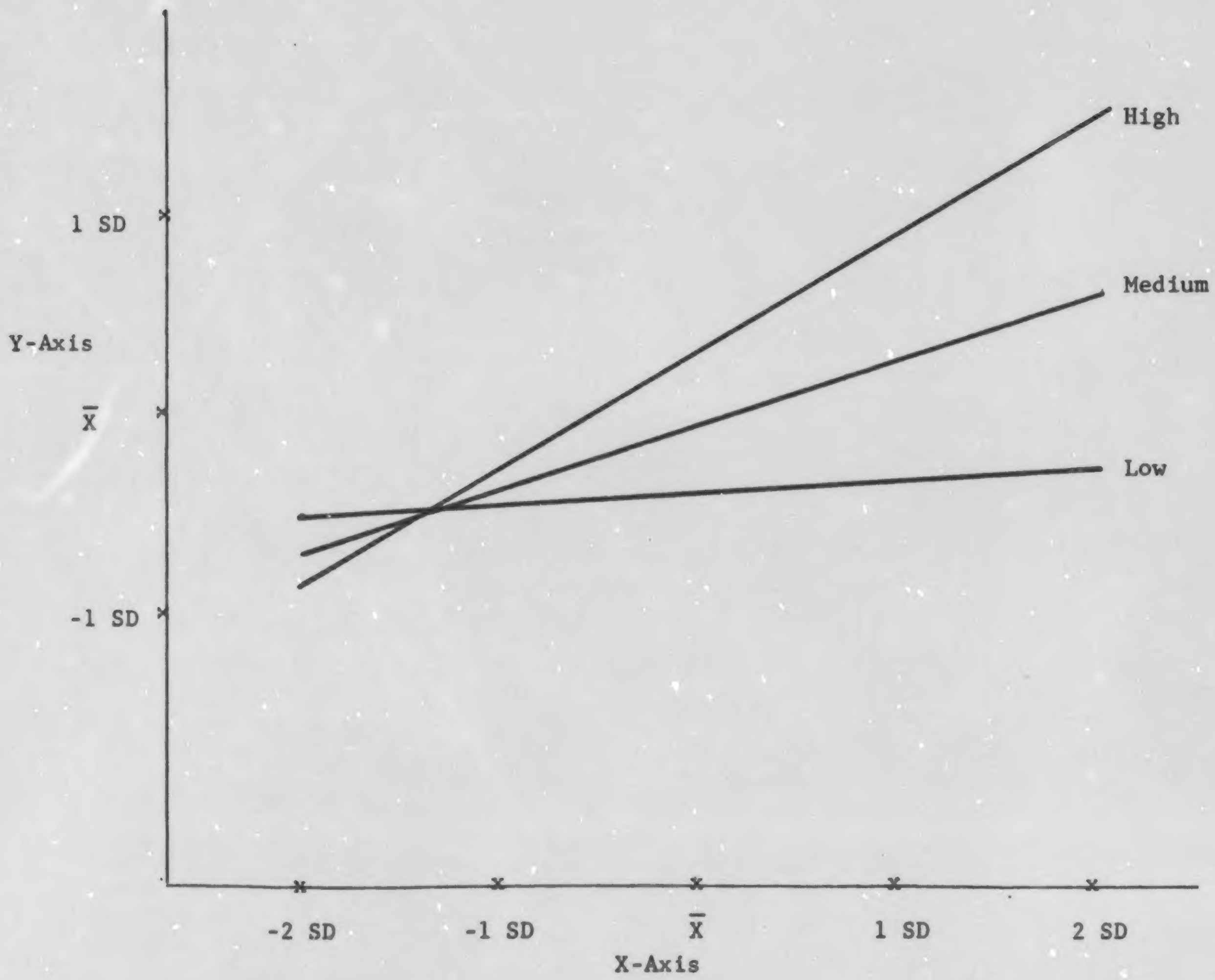


FIGURE V-85

Y-Axis (Criterion)	SSC-Att Post	Figure Number	5.1 - 8B
X-Axis (Predictor)	SSC-Att Pre	Figure ID	
Grouped on	COR-SI	Table	

Effect Pre-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

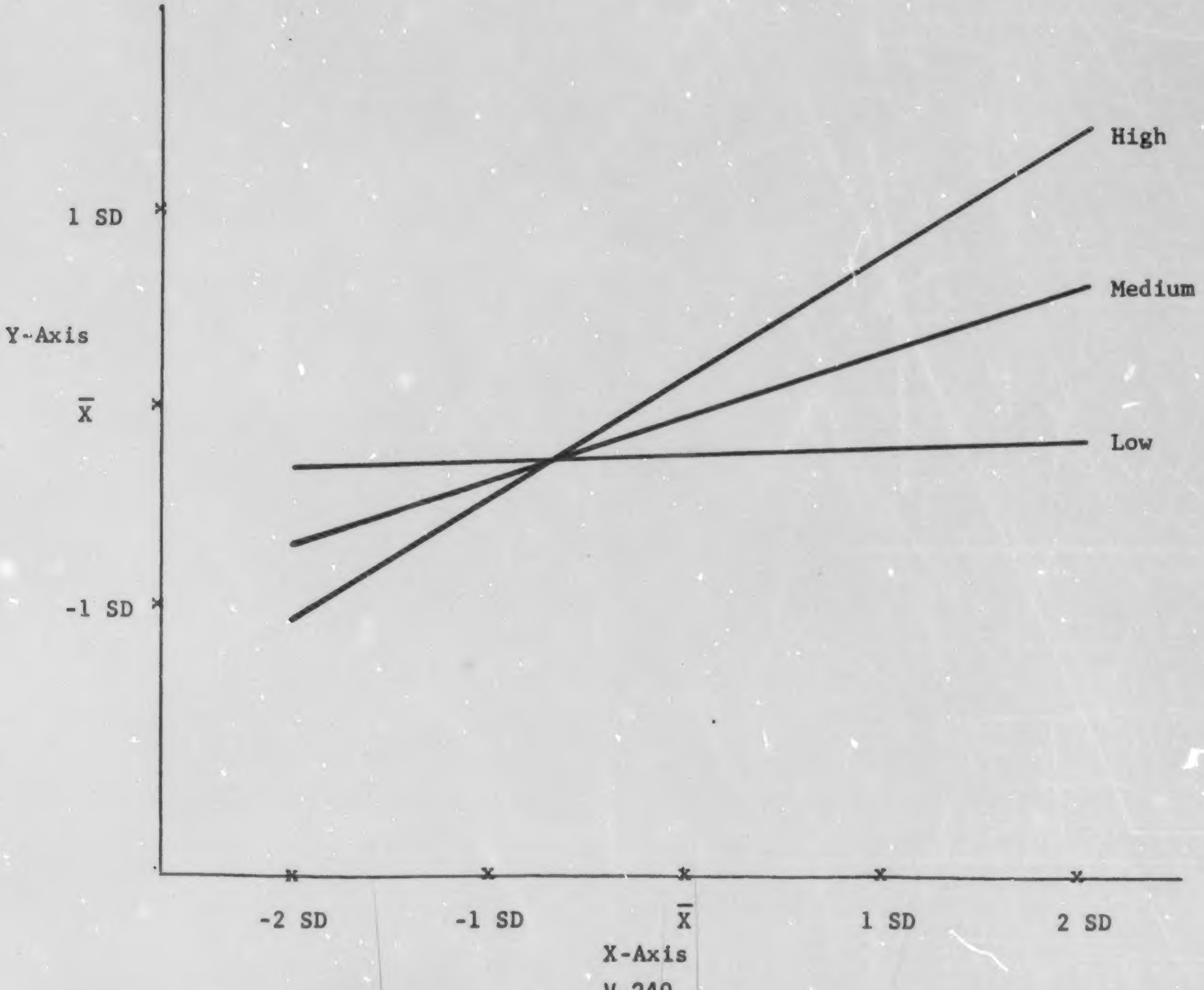


FIGURE V-86

Y-Axis (Criterion) SSC-Att Post.Pre

X-Axis (Predictor) SES

Grouped on COR-SO

Figure Number 5.1 - 7B

Figure ID

Table

Effect Pupil-L x Teacher-L

Year and site Austin 1

Stage 5

Unit of Analysis Between-Class

Pretest controlled Yes

Multiple graph; X at

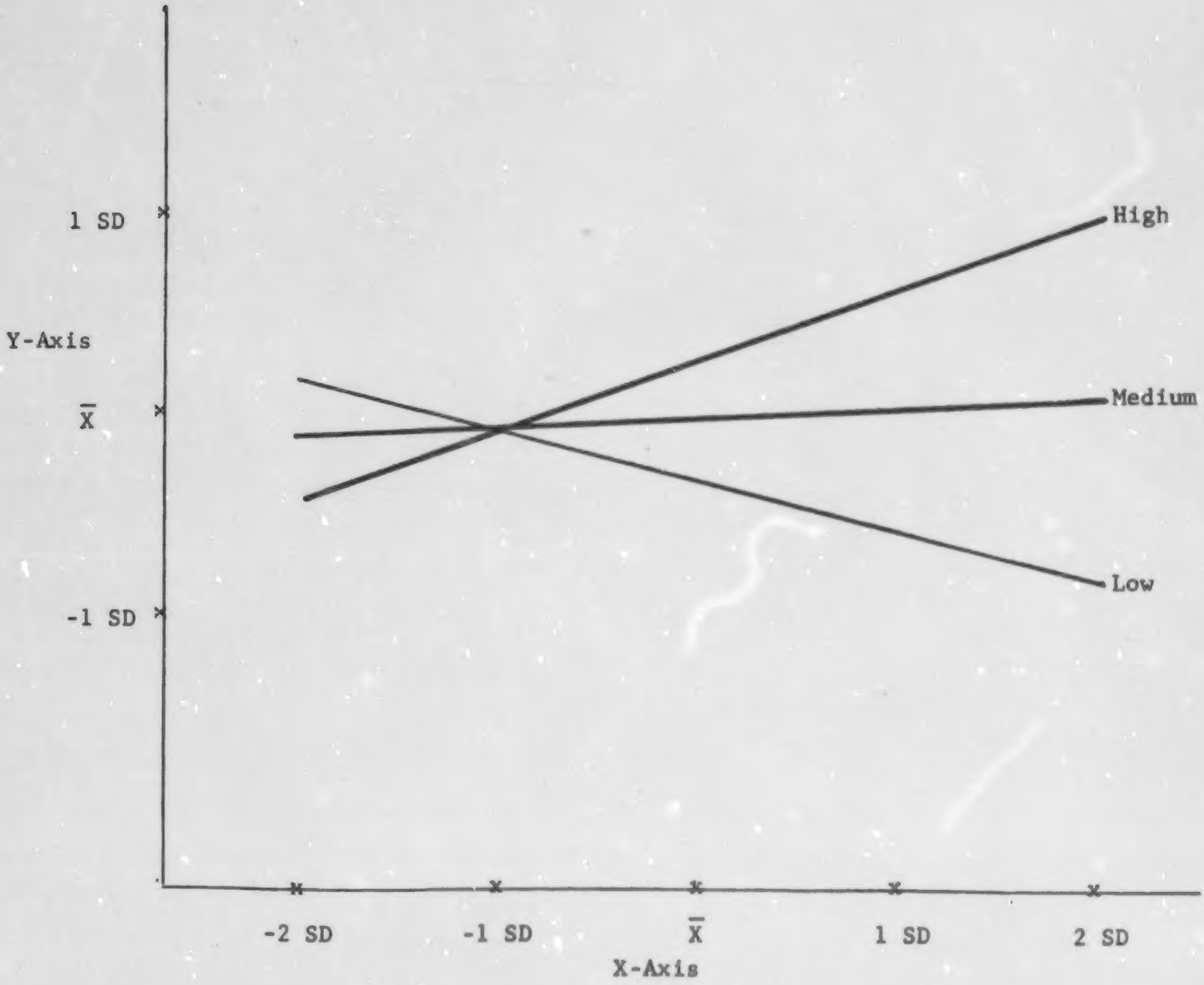


FIGURE V-87

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) SES
Grouped on COR-KU

Figure Number 5.1 - 4B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

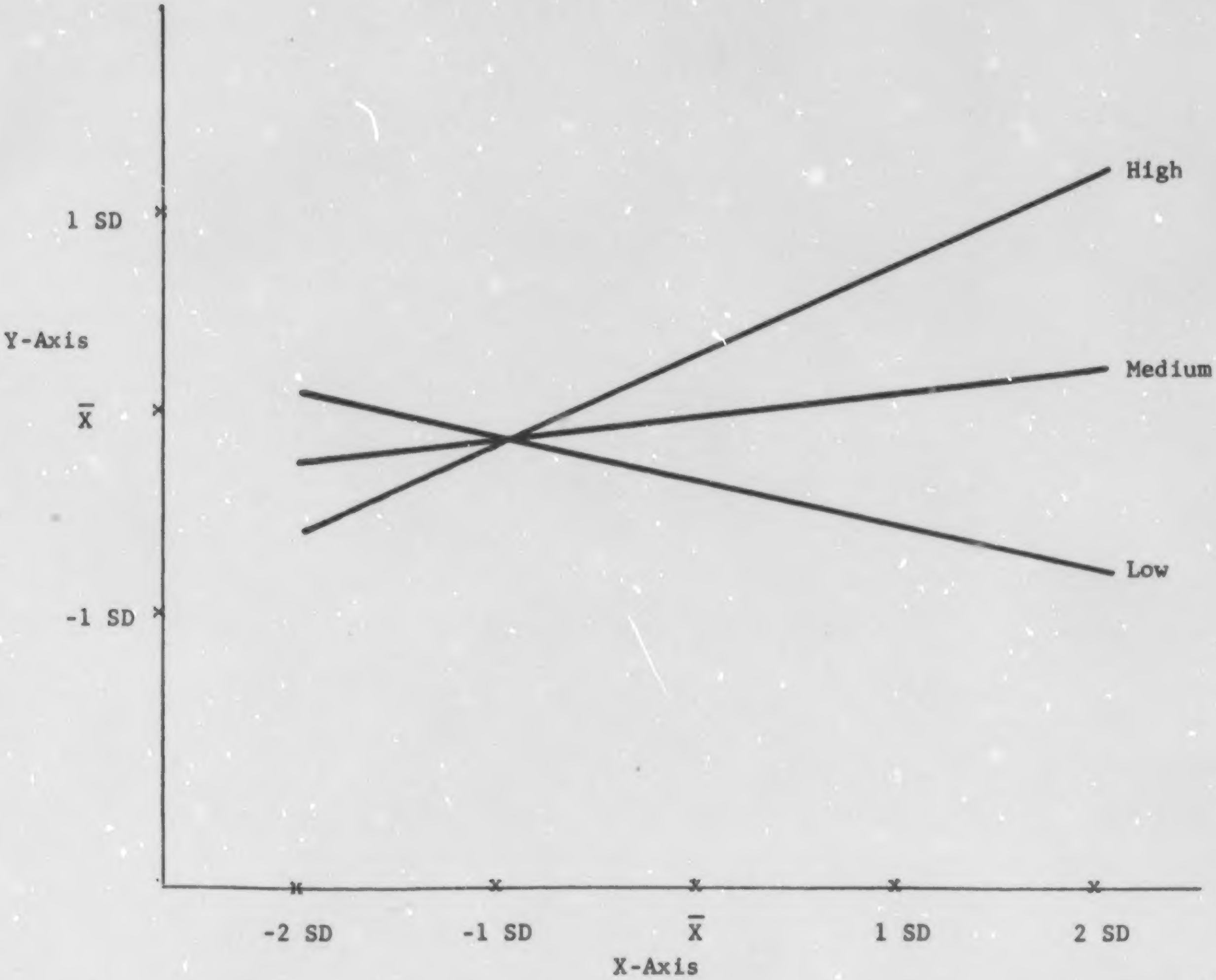


FIGURE V-88

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) Ach (CT)
Grouped on COR-SO

Figure Number 5.1 - 6B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin I
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

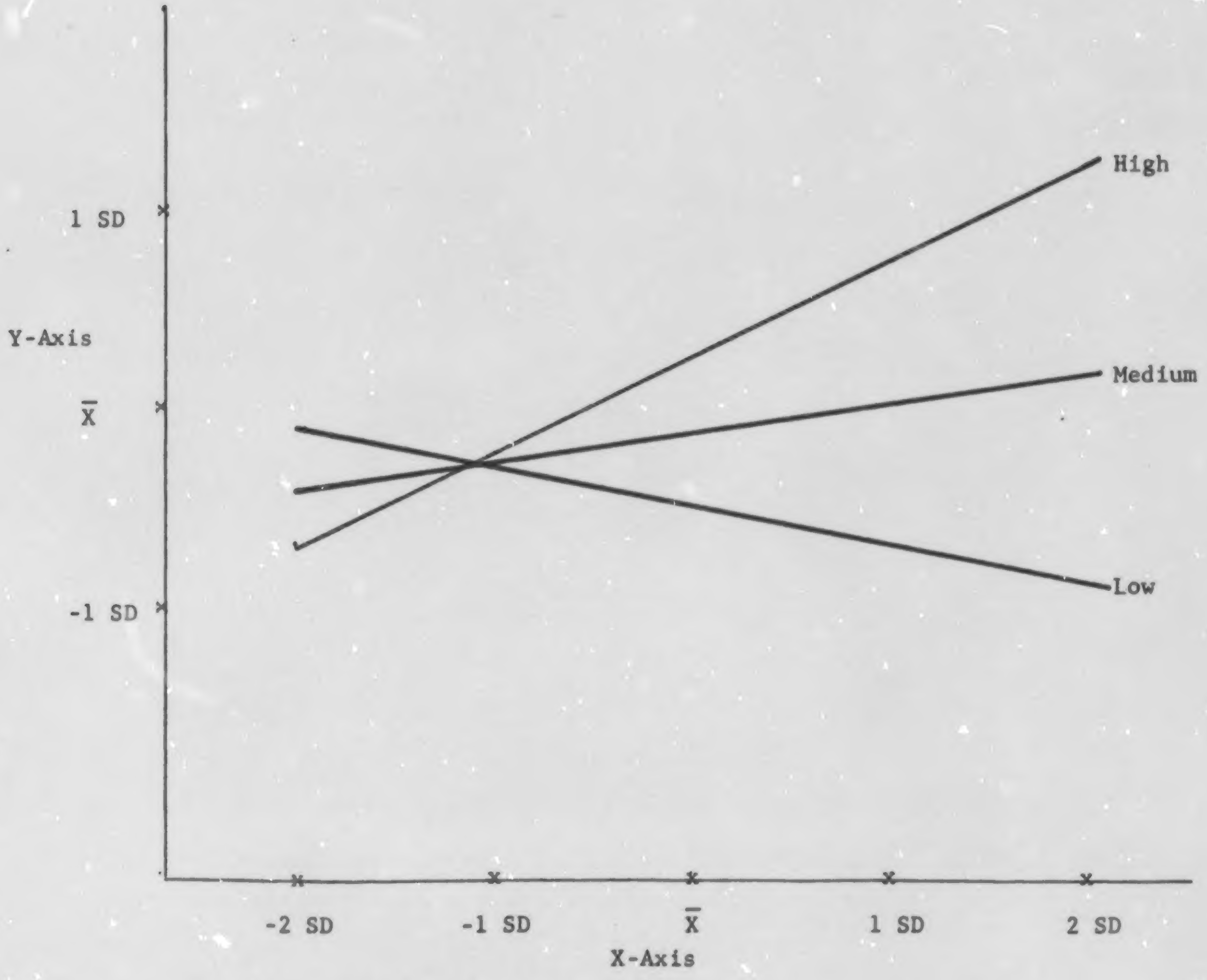


FIGURE V-89

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) Ach (CT)
Grouped on COR-KU

Figure Number 5.1 - 2B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

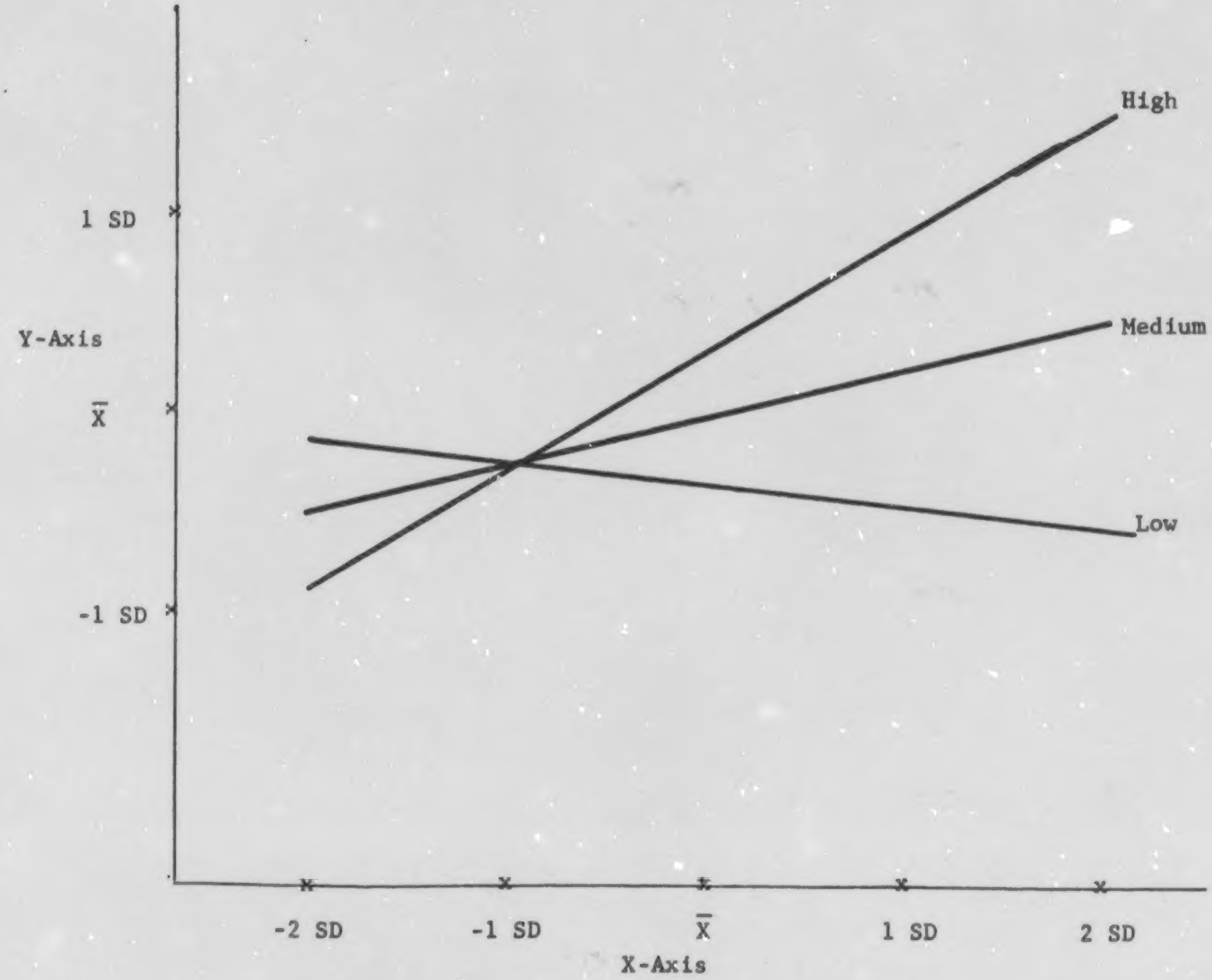


FIGURE V-90

Y-Axis (Criterion) SSC-Att Post.Pre

X-Axis (Predictor) Ach (CT)

Grouped on COR-SI

Effect Pupil-L x Teacher-L

Year and site Austin I

Stage 5

Unit of Analysis Between-Class

Pretest controlled Yes

Multiple graph; X at

Figure Number 5.1 - 9B

Figure ID

Table

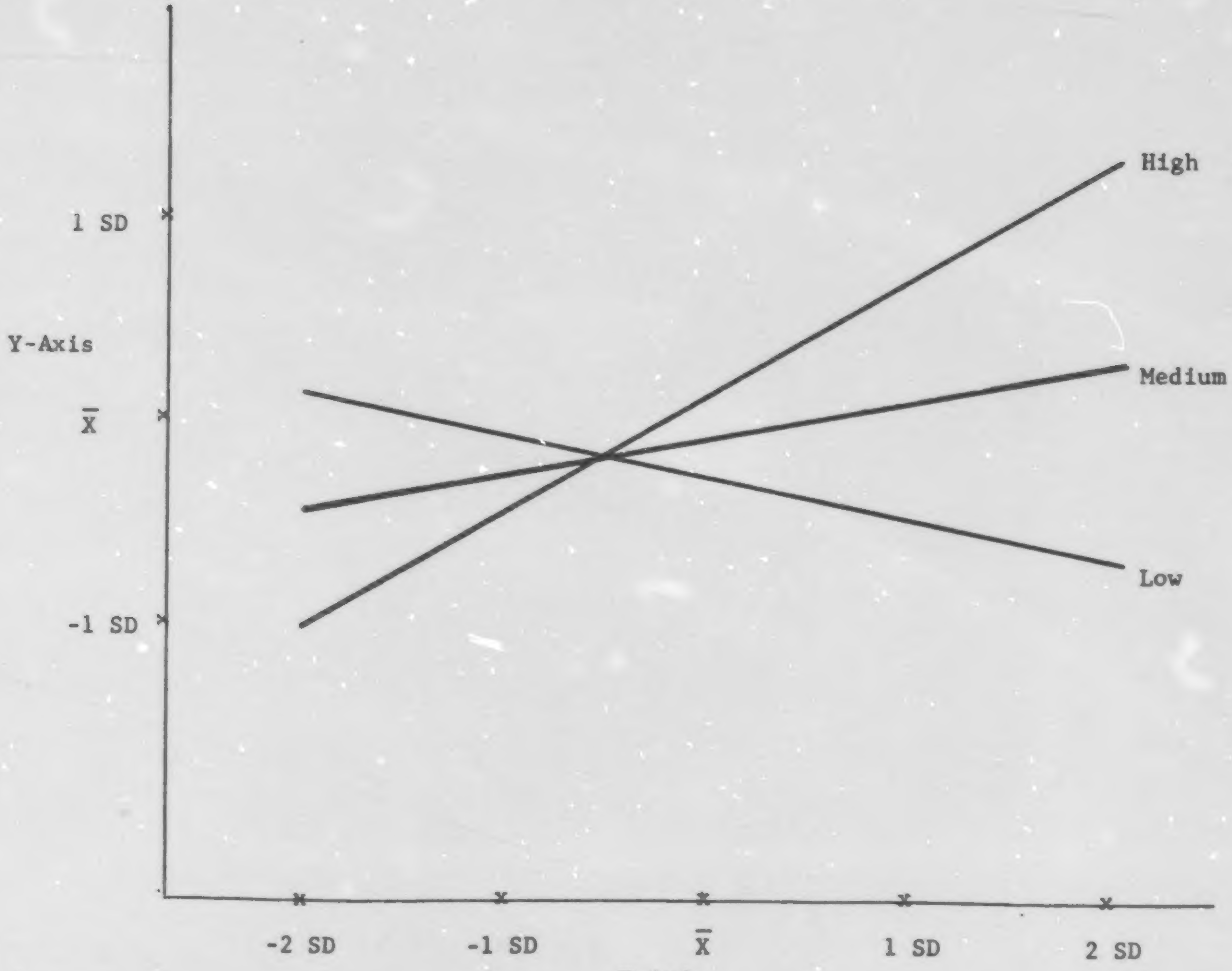


FIGURE V-91

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COK-KU

Figure Number 5.1 - 3B
Figure ID
Table

Effect Pupil-L x Teacher-L +Q
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

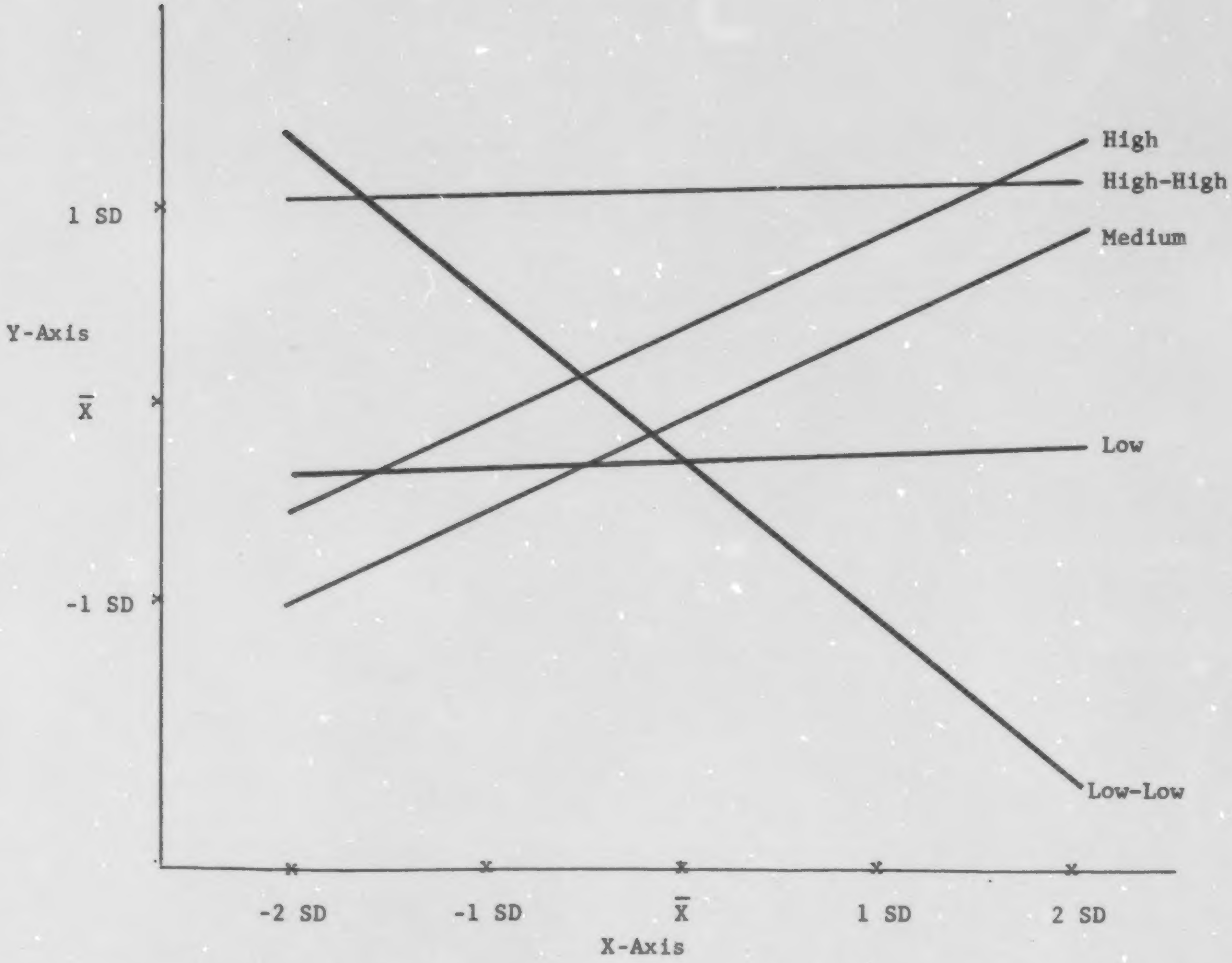
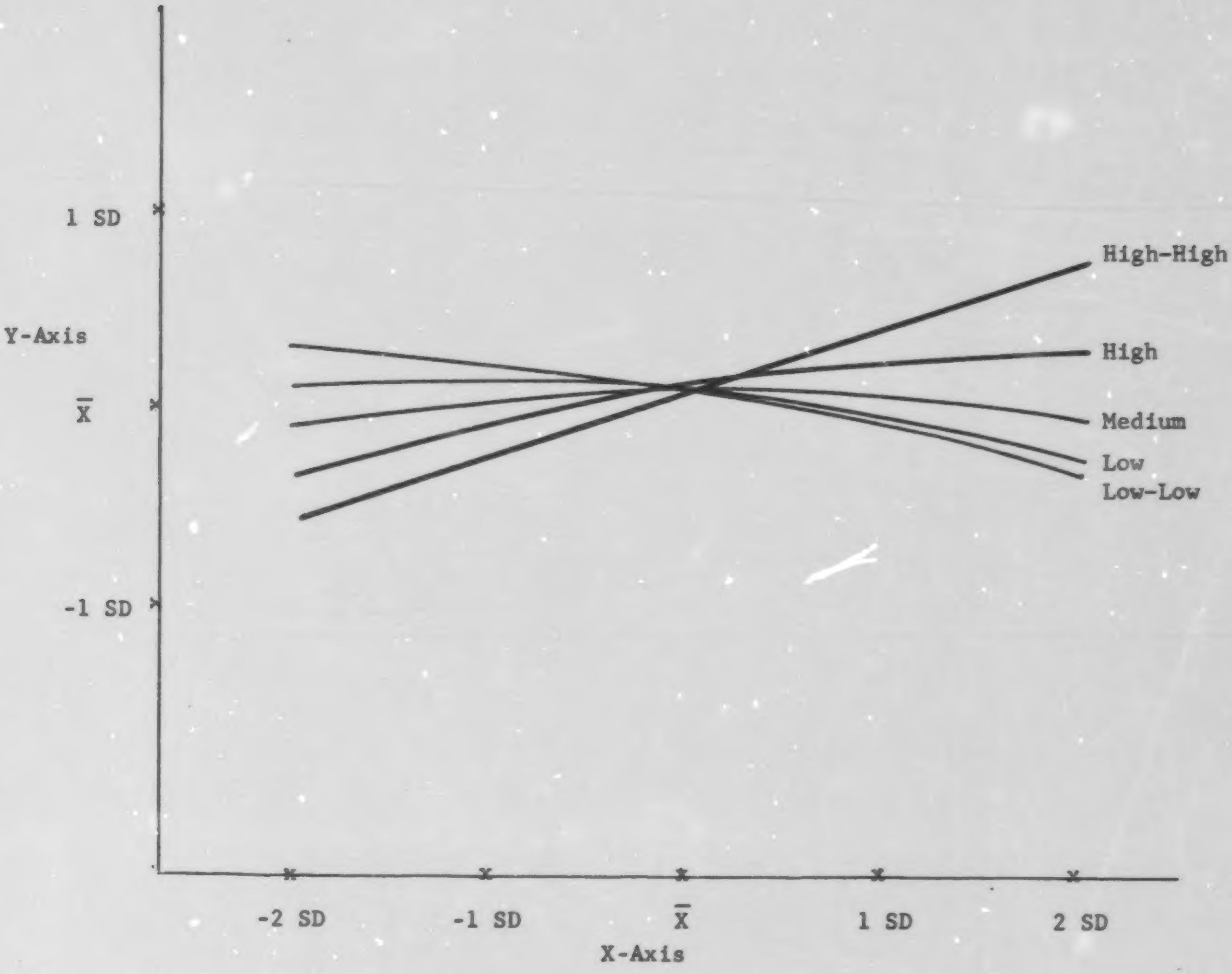


FIGURE V-92

Y-Axis (Criterion) SSC-Att Post.pre
X-Axis (Predictor) SES
Grouped on COR-SO

Effect Pupil-L x Teacher-L
Year and site Austin I
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 3W
Figure ID
Table



547

FIGURE V-93

Y-Axis (Criterion) SSC-Att Post.pre
X-Axis (Predictor) SES
Grouped on COR-KU

Effect Pupil-L x Teacher-L + Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 2W
Figure ID
Table

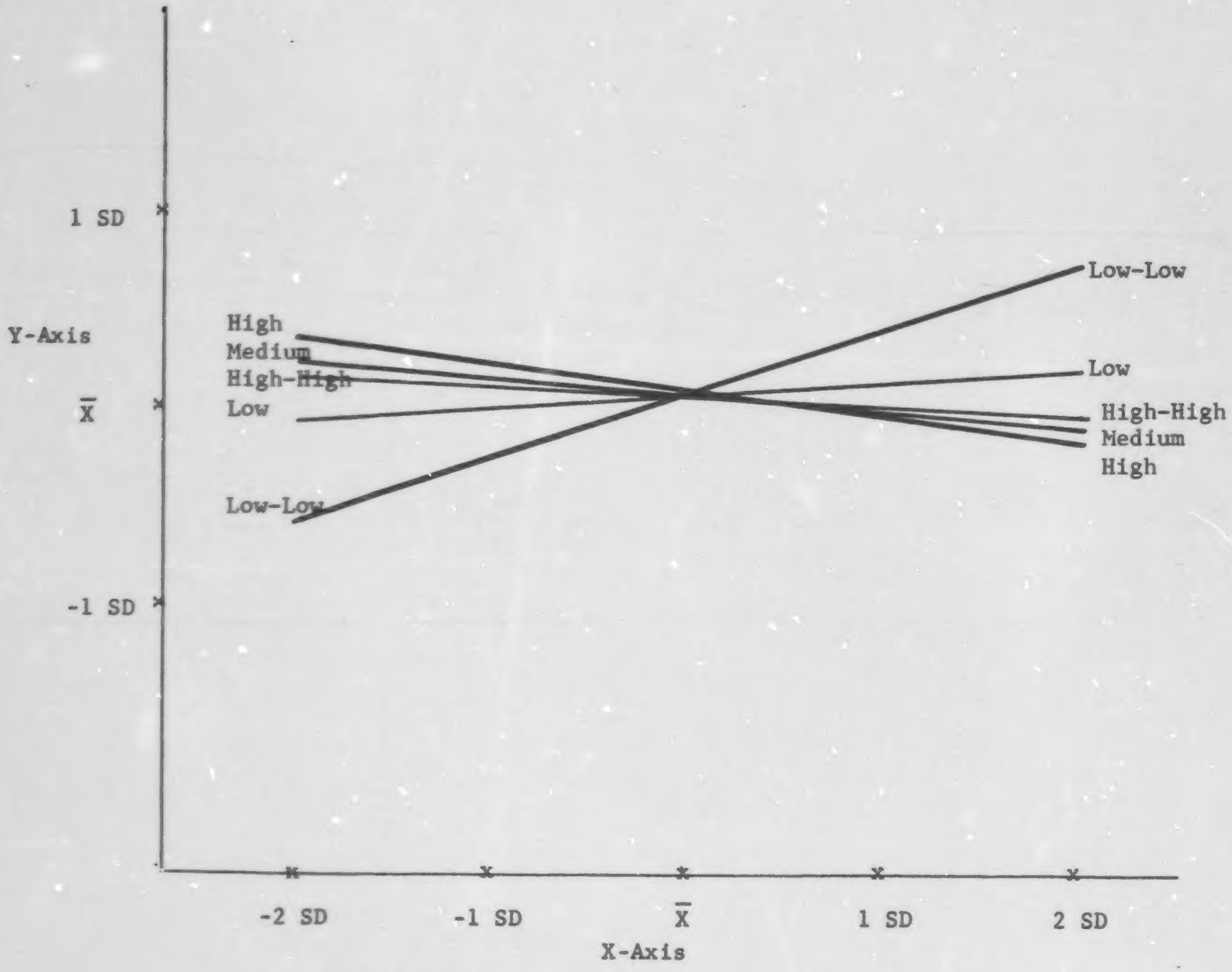


FIGURE V-94

Y-Axis (Criterion) SSC-Att Post.pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-KU

Figure Number 5.1 - 1W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

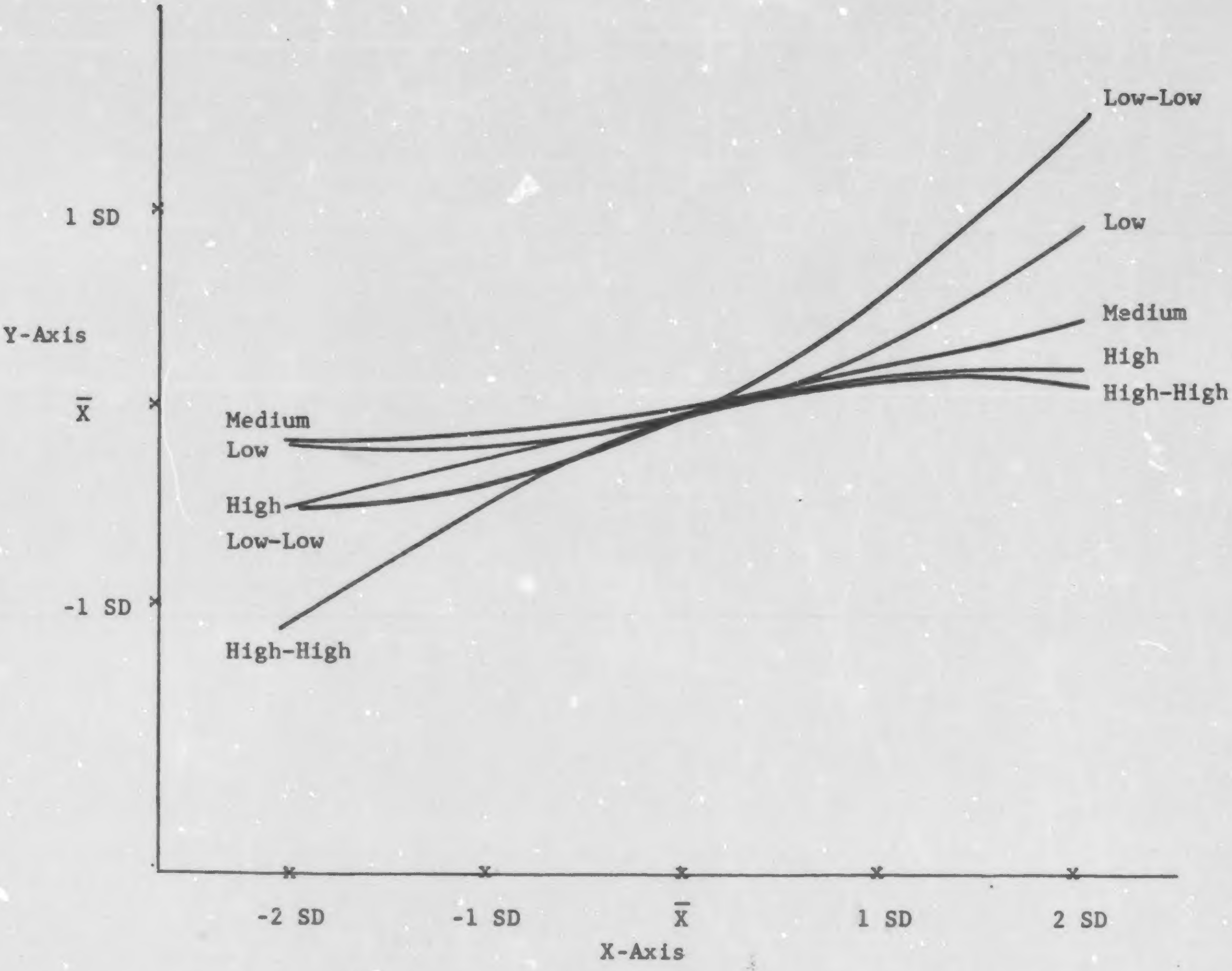


FIGURE V-95

Y-Axis (Criterion)	SSC-Att Post	Figure Number	K5.1 - 9B
X-Axis (Predictor)	SSC-Att Pre	Figure ID	
Grouped on	COR-SI	Table	

Effect Pre-L x Teacher-Q
Year and site Kentucky 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

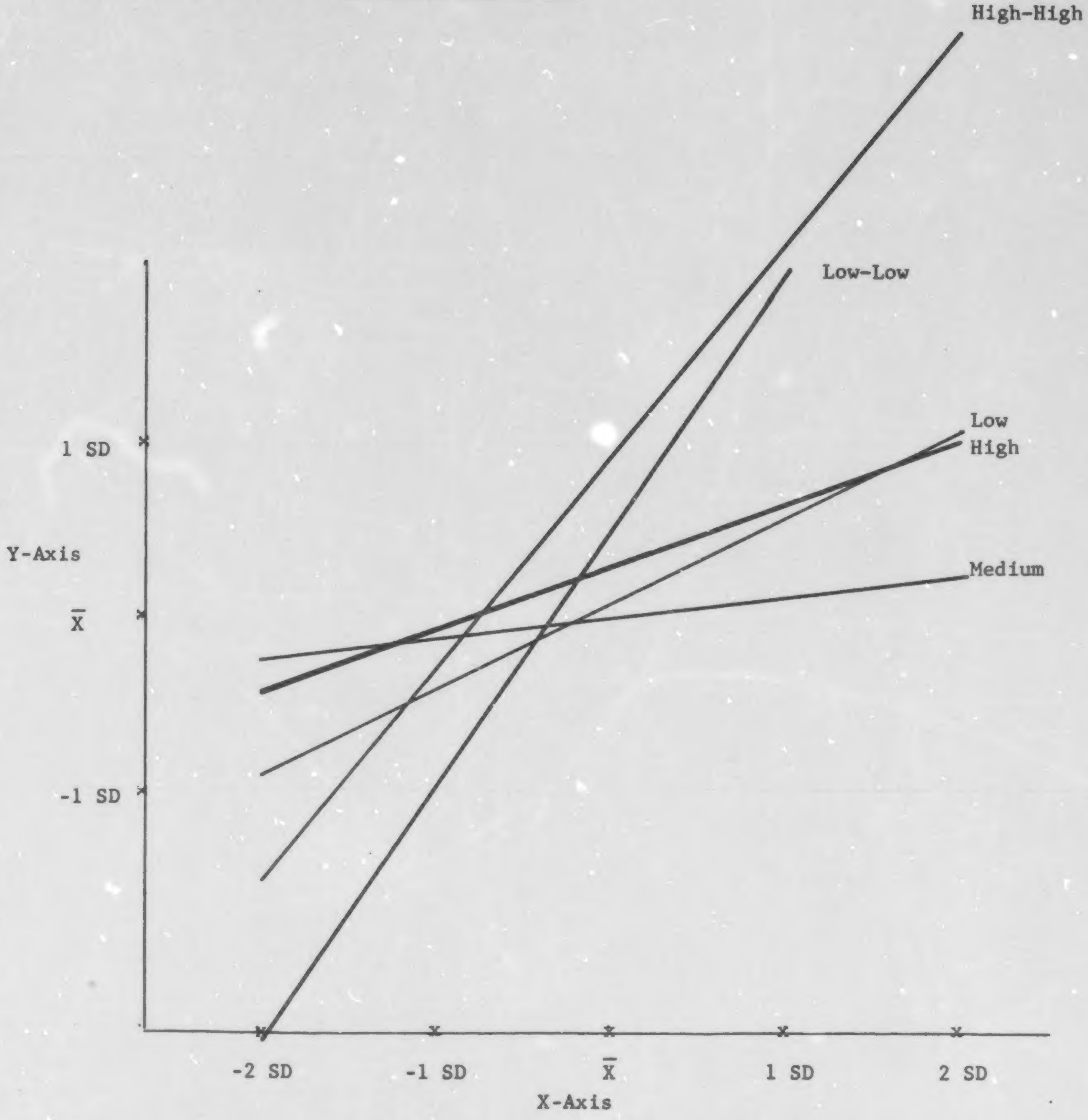
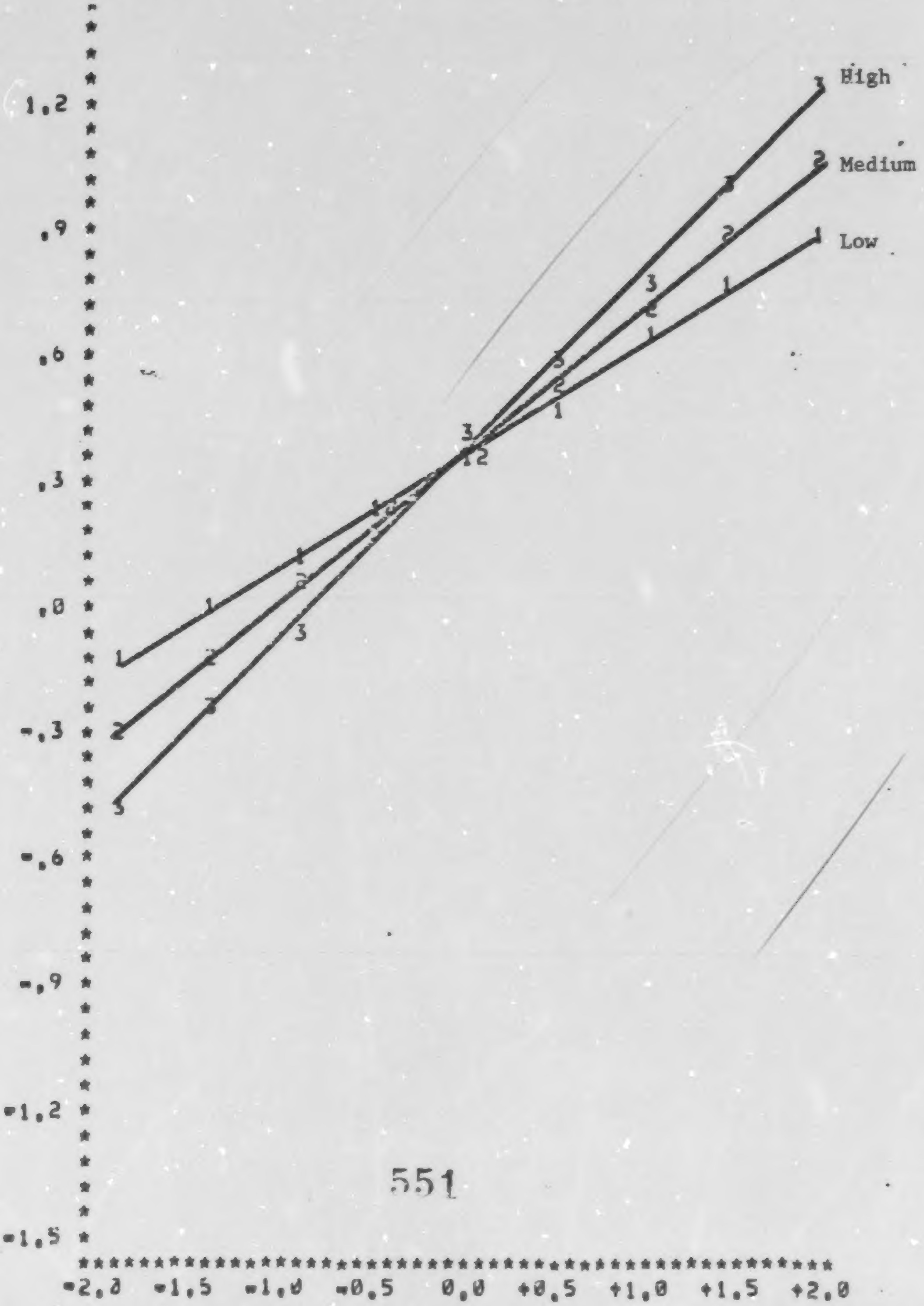


FIGURE V-96

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on COR-SO
Effect Pre-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 4W
Figure ID
Table



551

FIGURE V-97

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) Self-est (P-H)
Grouped on COR-SI

Figure Number 5.1 -3W
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

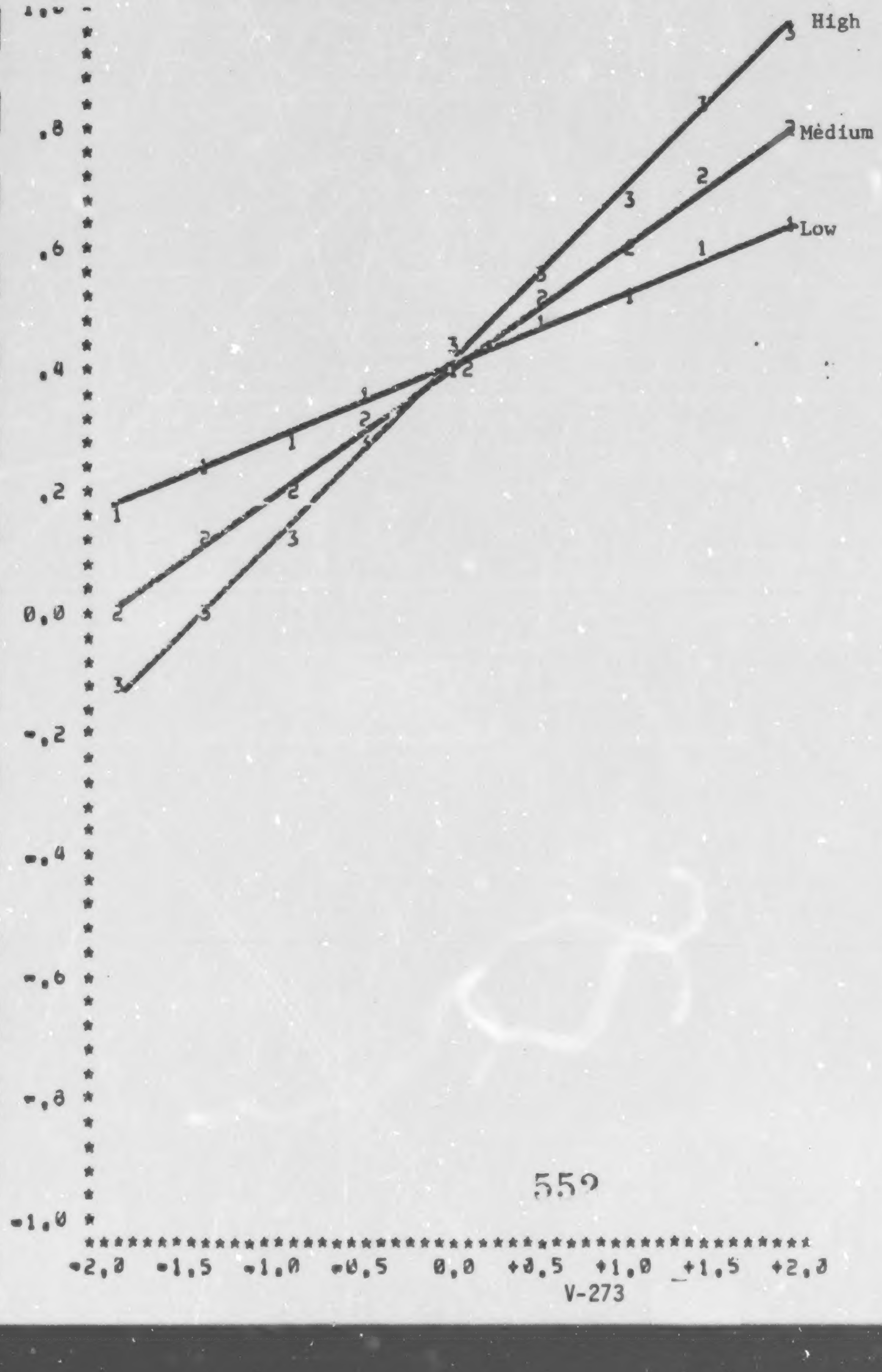


FIGURE V-98

Y-Axis (Criterion) SSC-Att Post.Pre
X-Axis (Predictor) SSI-Att
Grouped on COR-KU
Figure Number 5.1 - 5W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Kentucky 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

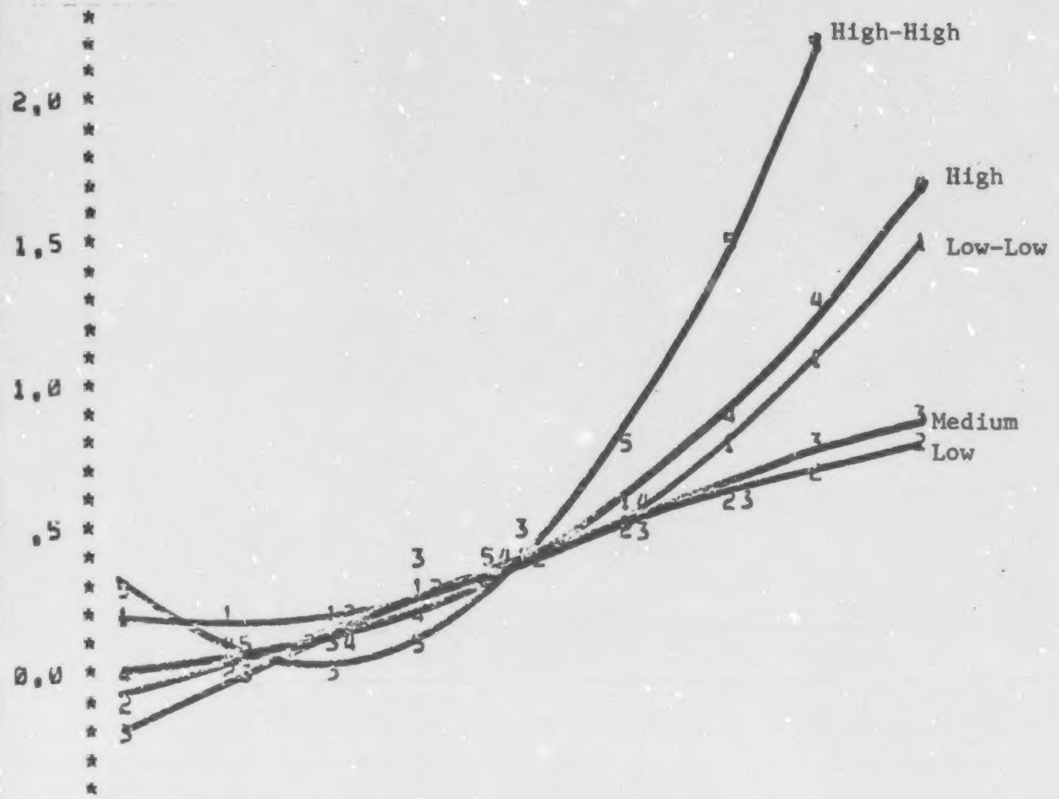


FIGURE V-99

Y-Axis (Criterion) SSC-Cop Post.Pre
X-Axis (Predictor) Ach (CT)
Grouped on COR-SO

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 21B
Figure ID
Table

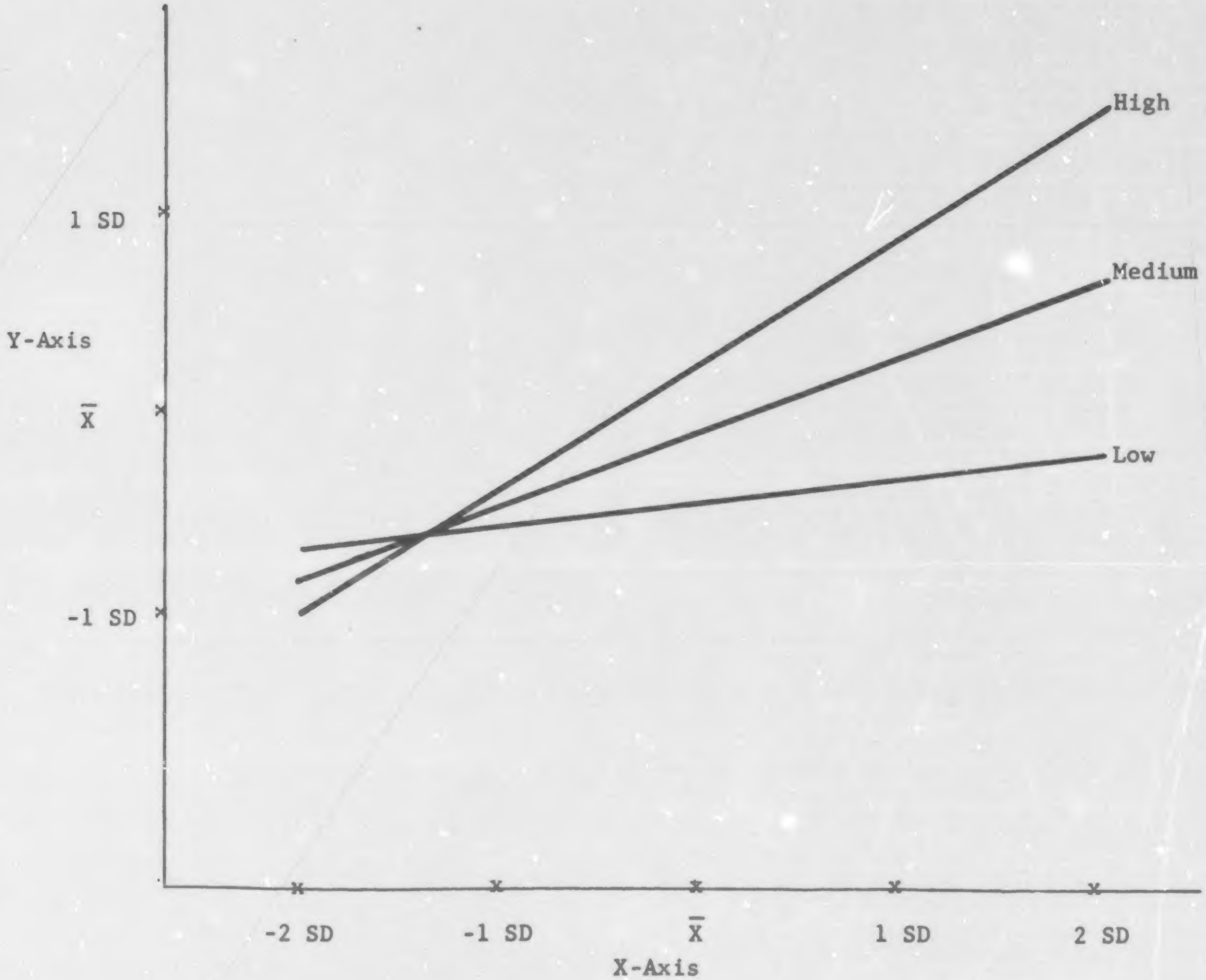


FIGURE V-100

Y-Axis (Criterion) SSC-Cop Post.Pre
X-Axis (Predictor) SES
Grouped on COR-SO

Figure Number 5.1 - 22B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 1
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

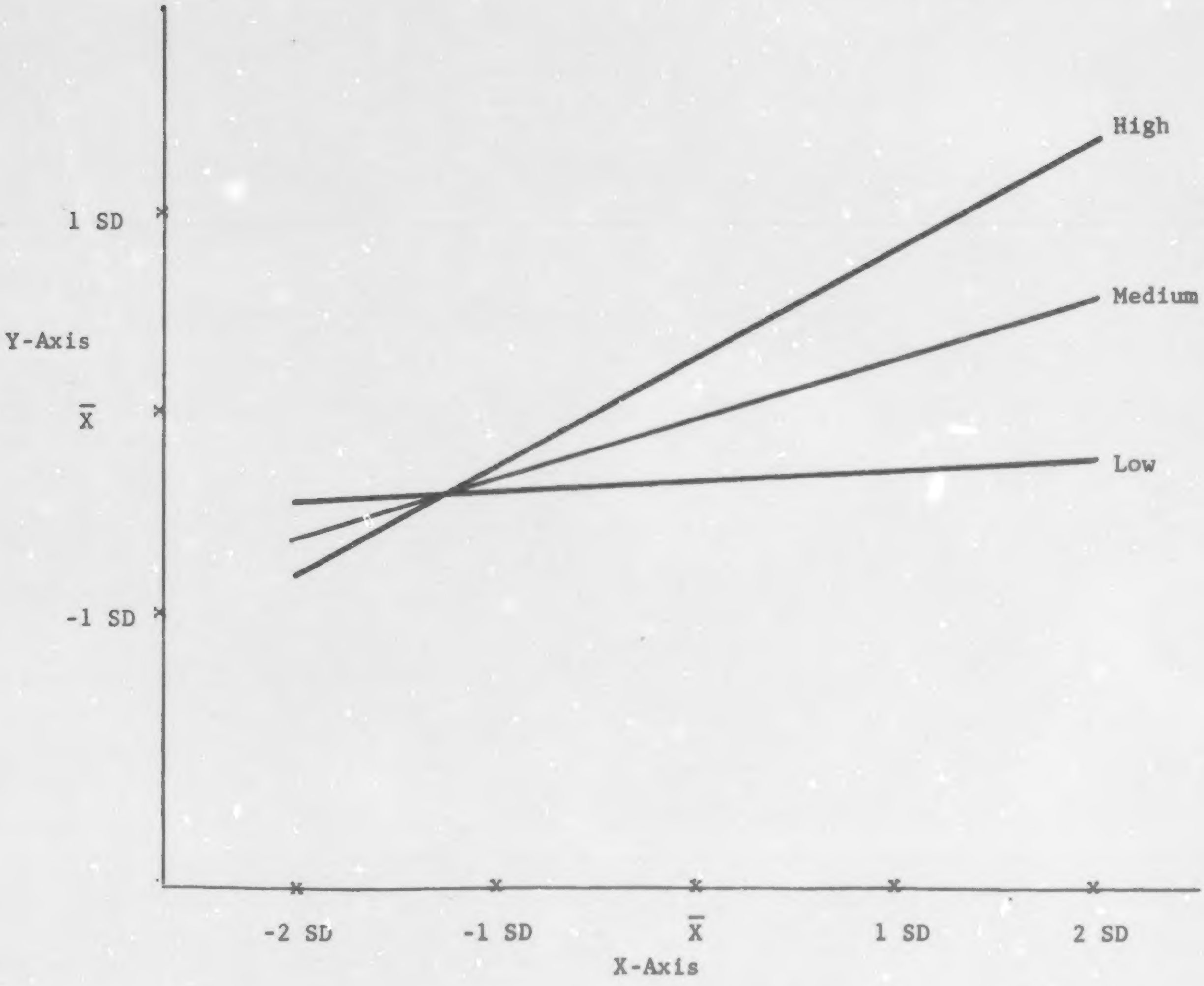


FIGURE V-101

Y-Axis (Criterion) SSC-Cop Post.pre
X-Axis (Predictor) Ach (CT)
Grouped on COR-SO

Effect Pupil-Q x Teacher-Q
Year and site Austin 1
Stage 5
Unit of Analysis Within-Class
Pretest controlled Yes
Multiple graph; X at

Figure Number 5.1 - 15W
Figure ID
Table

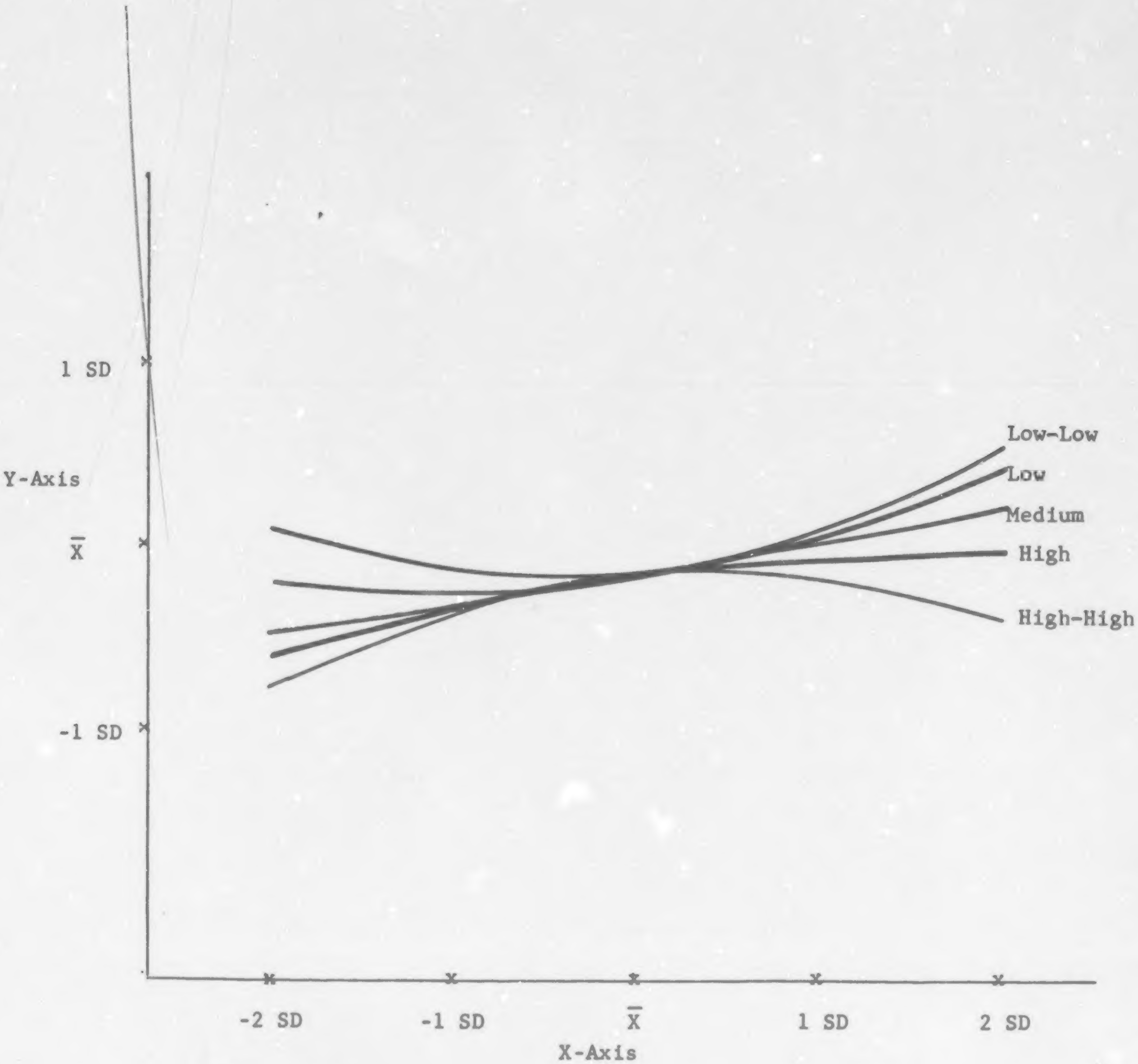
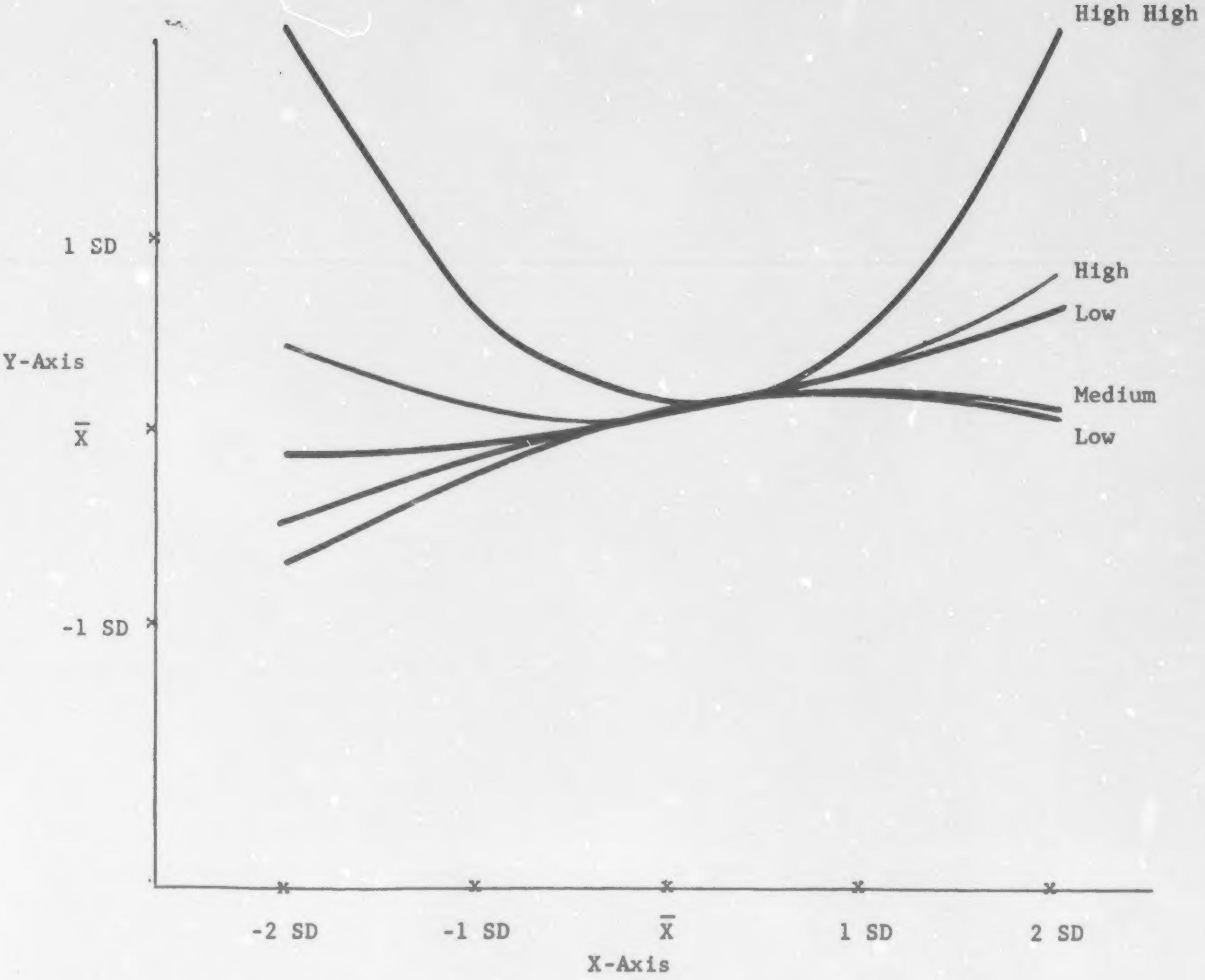


FIGURE V-102

Y-Axis (Criterion) SSC-cop post-pre
X-Axis (Predictor) SSC-att.
Grouped on COR-SO

Figure Number 5.2 - 16W
Figure ID
Table

Effect Pupil-Q x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Within-class
Pretest controlled Yes
Multiple graph; X at



557

FIGURE V-103

Y-Axis (Criterion) SSC-Cop Post.pre
X-Axis (Predictor) SES
Grouped on COR-SO

Figure Number 5.2 - 18B
Figure ID
Table

Effect Pupil-L x Teacher-Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

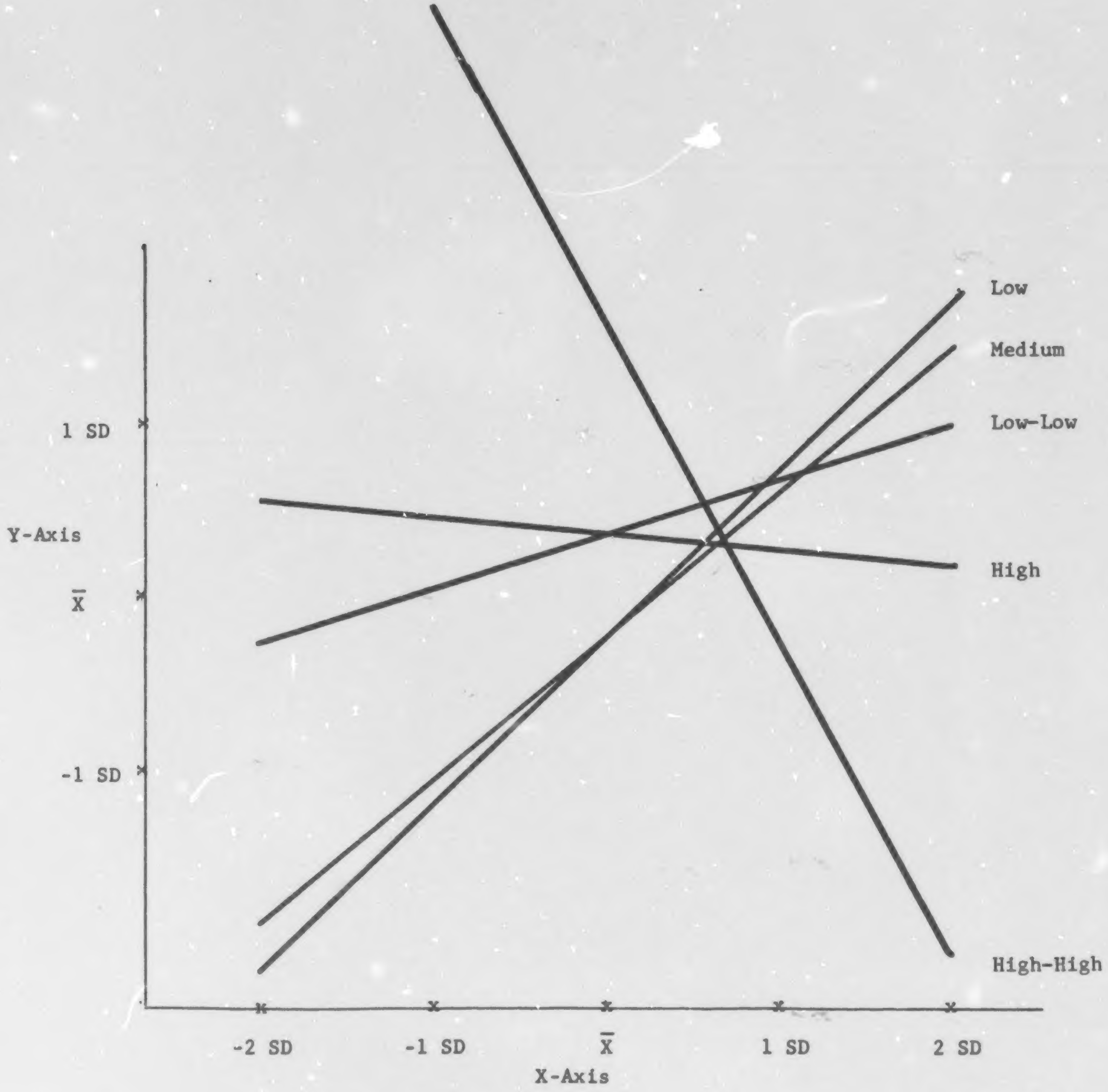


FIGURE V-104

Y-Axis (Criterion)	SSC-Cop Post.pre	Figure Number	5.2 - 17B
X-Axis (Predictor)	SES	Figure ID	
Grouped on	COR-KU	Table	

Effect Pupil-L x Teacher-L+Q
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at

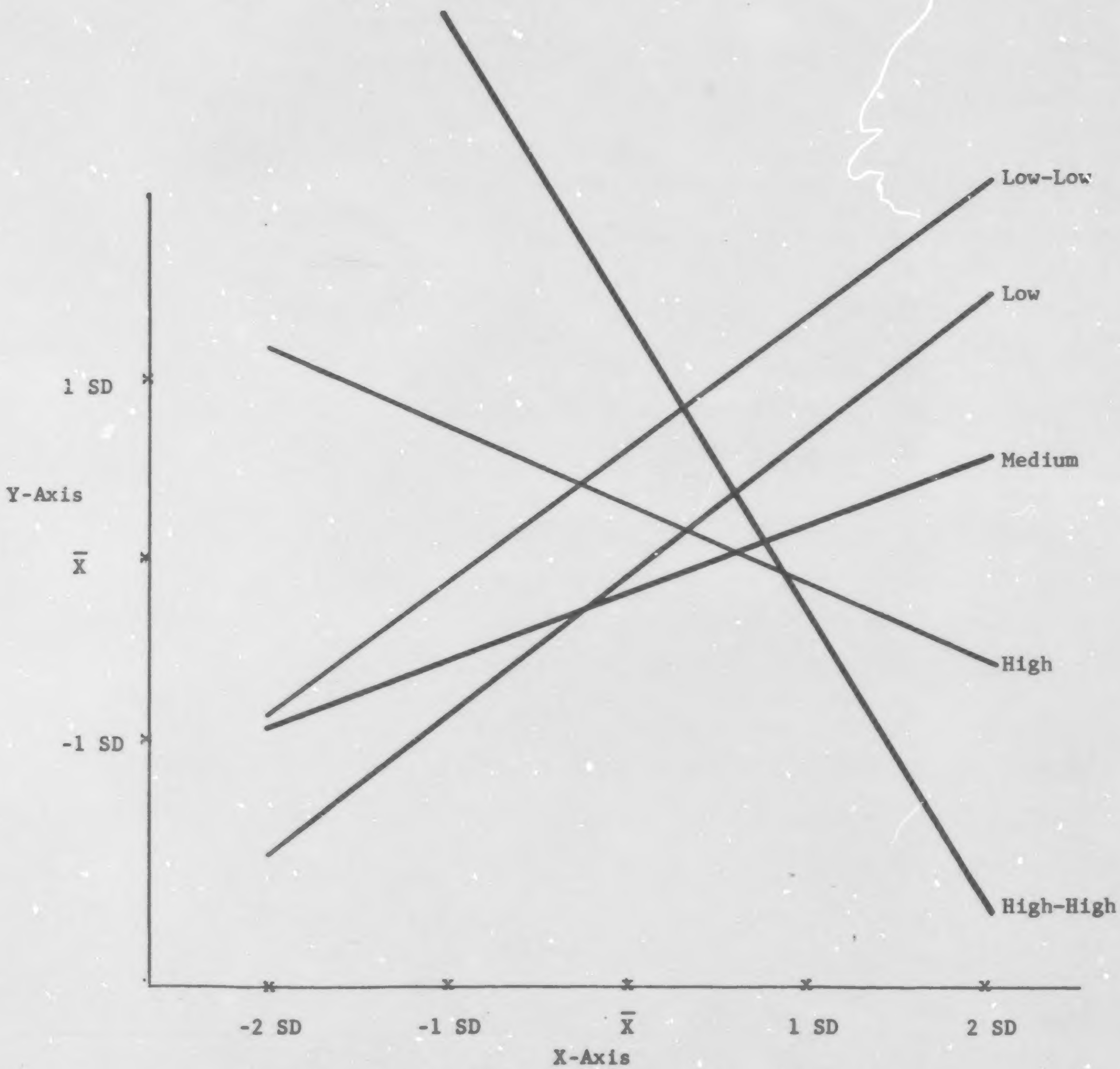
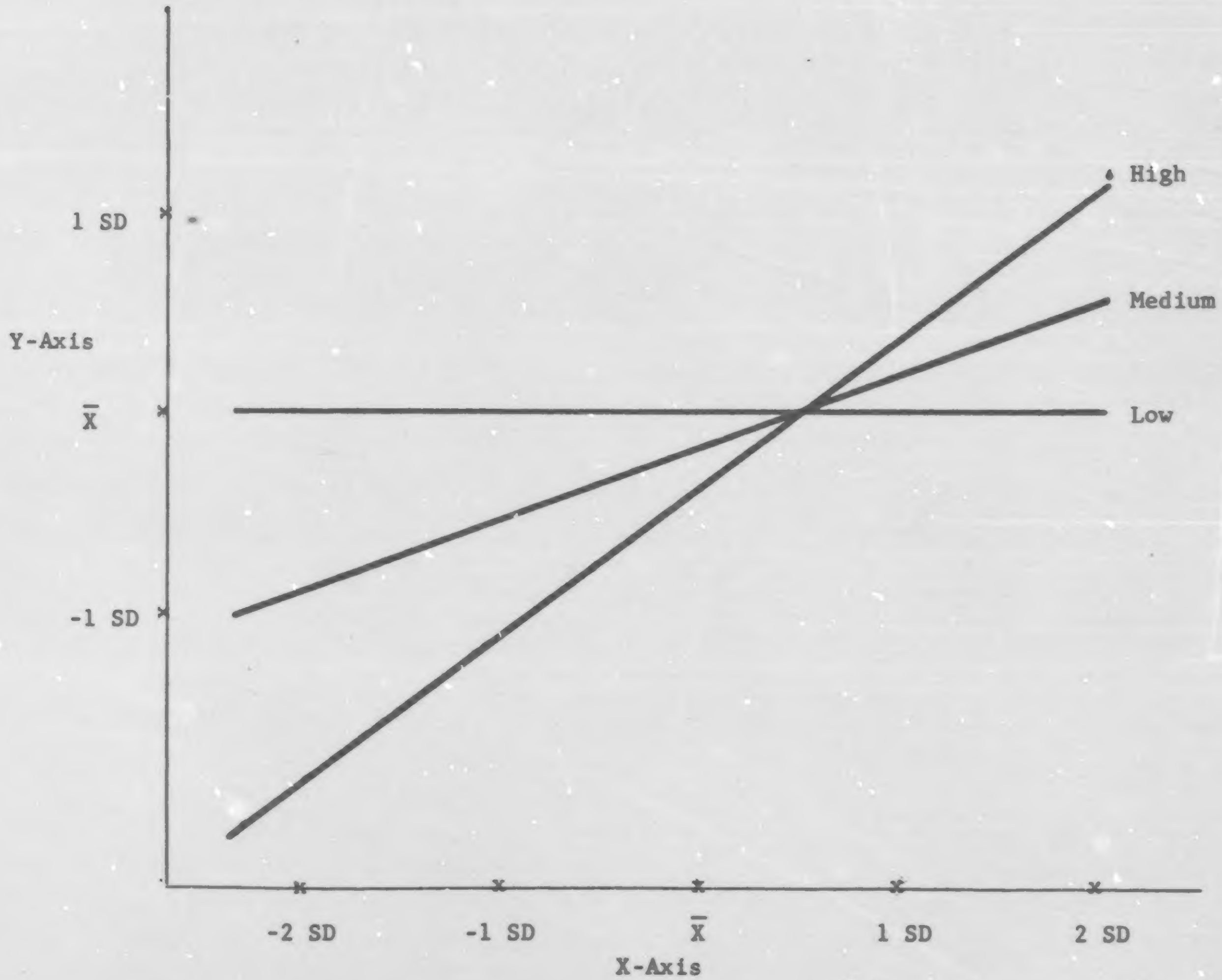


FIGURE V-105

Y-Axis (Criterion) SSC-Cop Post.pre
X-Axis (Predictor) HOW
Grouped on COR-SI

Figure Number 5.2 - 19B
Figure ID
Table

Effect Pupil-L x Teacher-L
Year and site Austin 2
Stage 5
Unit of Analysis Between-Class
Pretest controlled Yes
Multiple graph; X at



560

FIGURE V-106

Y-Axis (Criterion) SSC-Cop Post.pre

X-Axis (Predictor) SET

Grouped on COR-SI

Figure Number K5.1 - 8B

Figure ID

Table

Effect Pupil-L x Teacher-L

Year and site Kentucky 1

Stage 5

Unit of Analysis Between-Class

Pretest controlled Yes

Multiple graph; X at

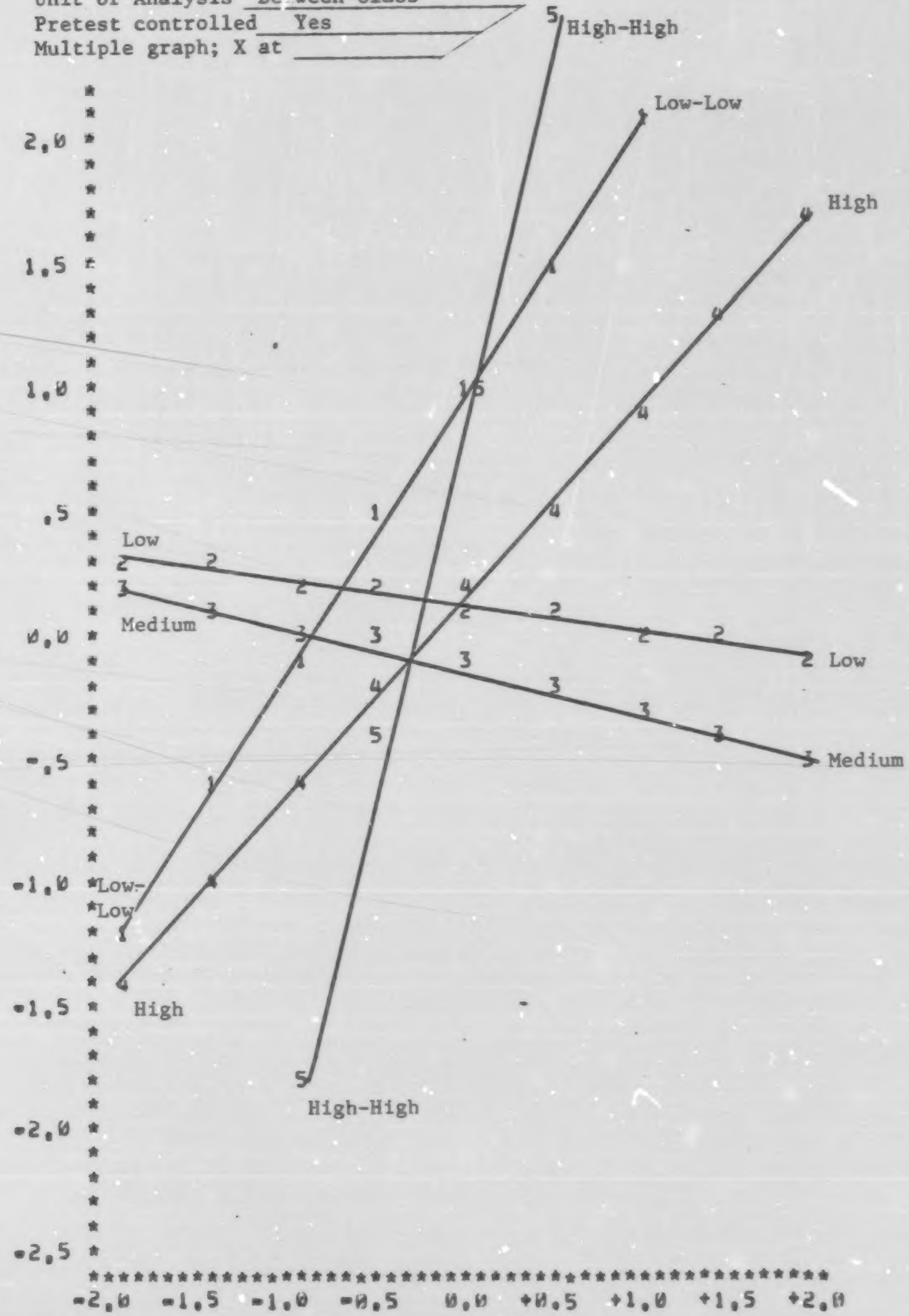
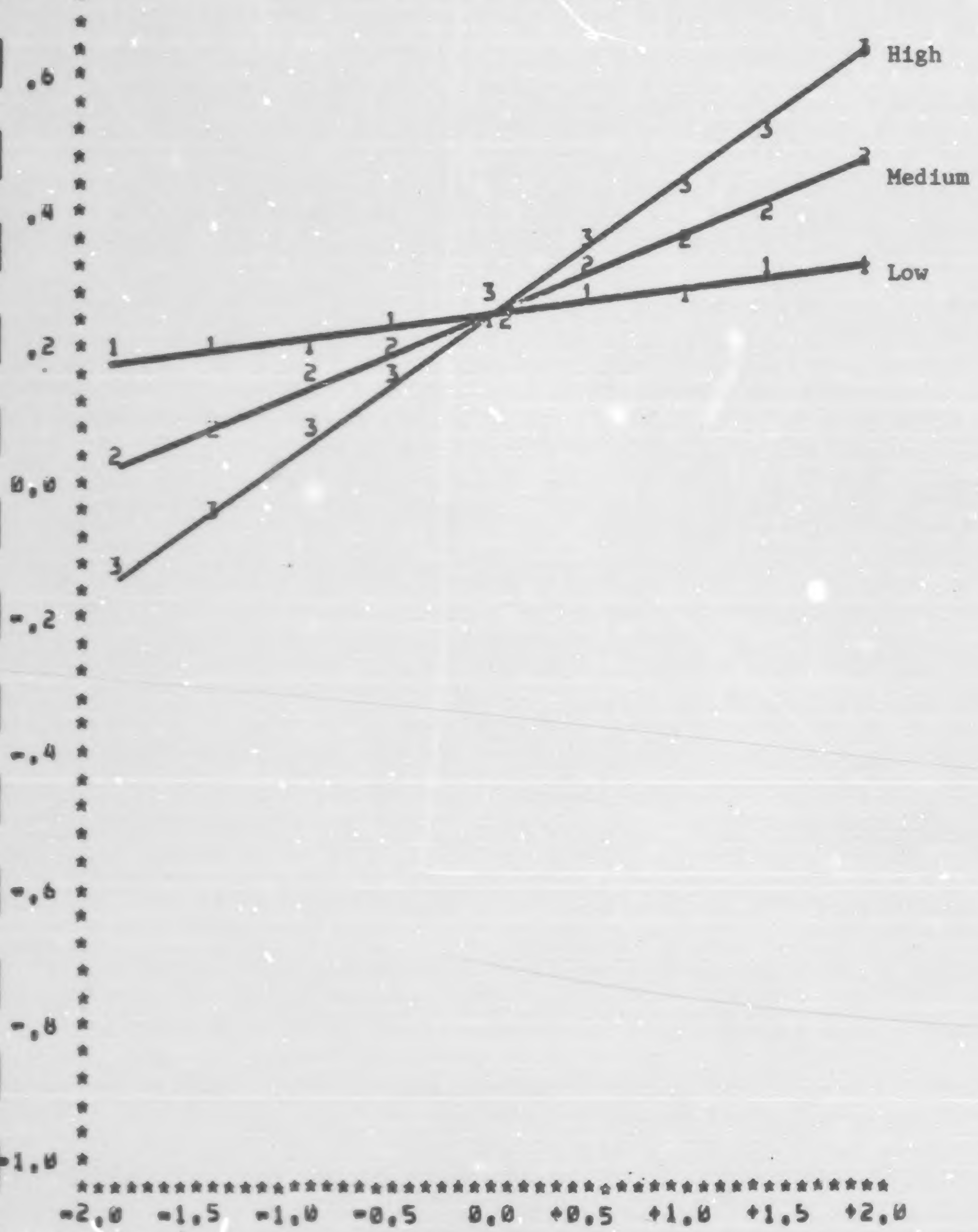


FIGURE V-107

Y-Axis (Criterion) SSC-C Post·Pre
X-Axis (Predictor) ACH
Grouped on COR-SO

Figure Number K5.1 - 13W
Figure ID
Table

Effect Pupil*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at



562

FIGURE V-108

Y-Axis (Criterion) SSC-C Post·Pre
X-Axis (Predictor) ACH
Grouped on COR-SI
Figure Number K5.1 - 14W
Figure ID
Table

Effect Pupil-L*Teacher-L
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at

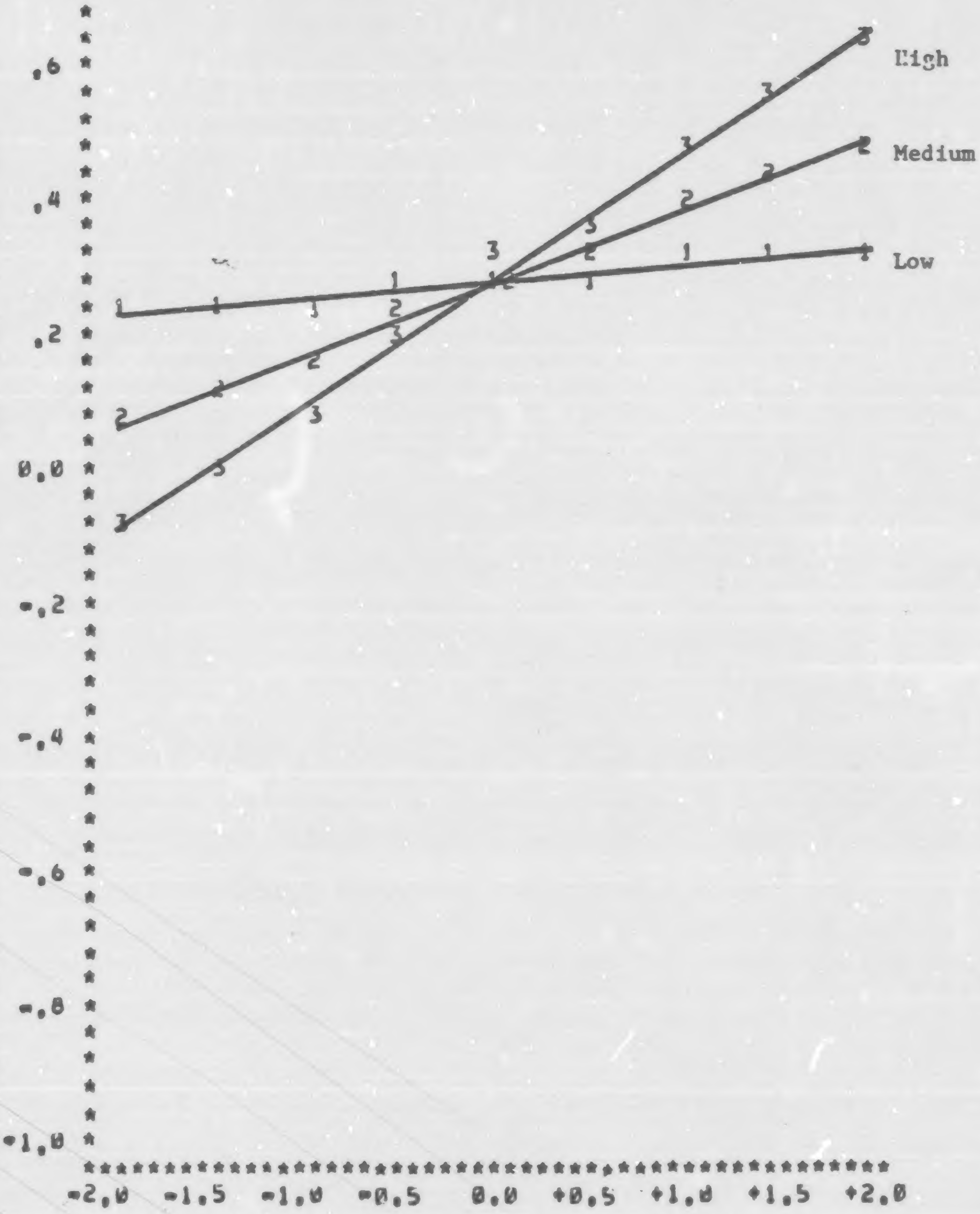


FIGURE V-109

Y-Axis (Criterion) SSC-C Post·Pre
X-Axis (Predictor) ACH
Grouped on COR-SI

Figure Number K5.1 - 15W
Figure ID
Table

Effect Pupil-Q*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at

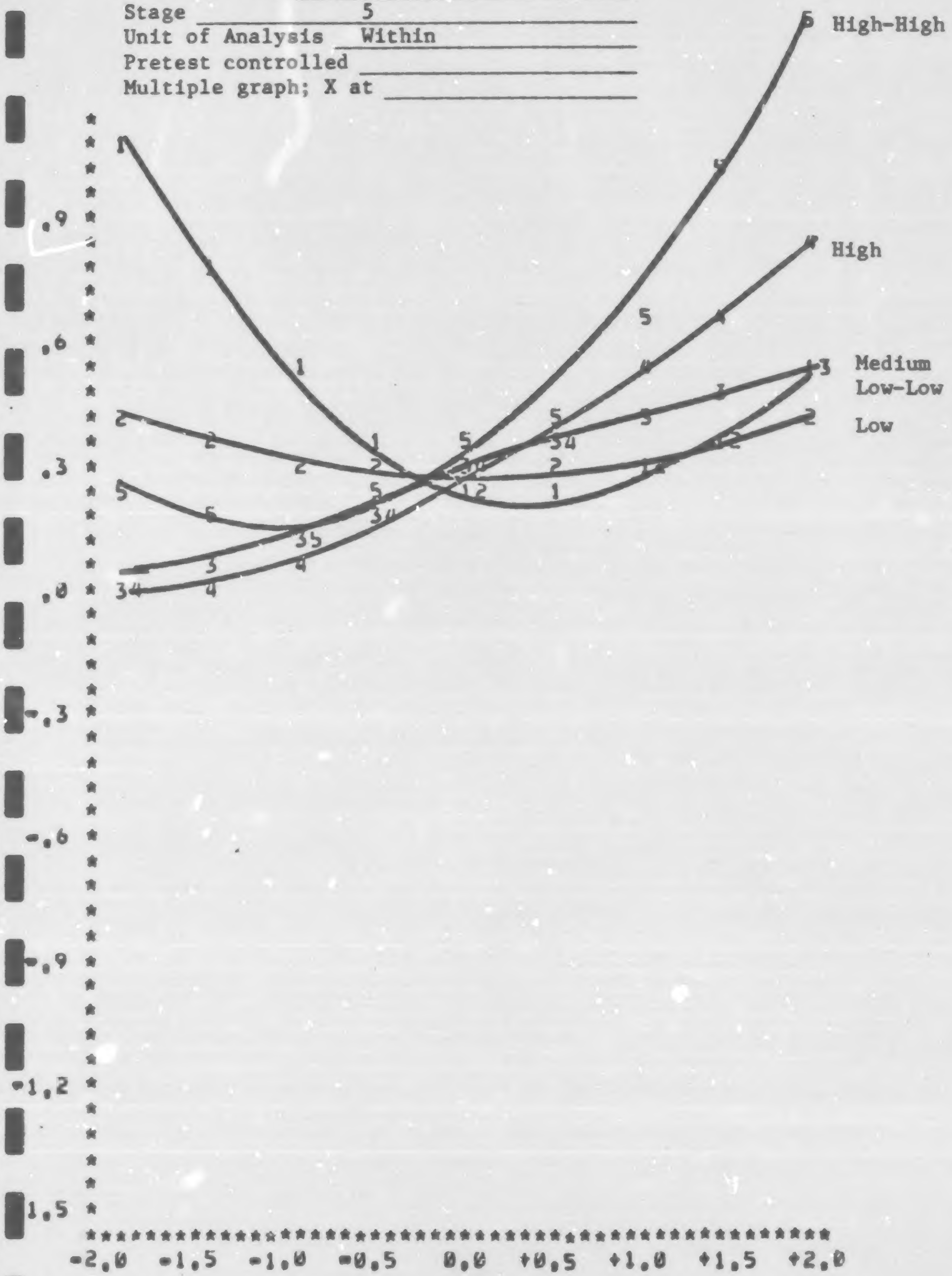


FIGURE V-110

Y-Axis (Criterion) SSC-C Post
X-Axis (Predictor) P-H
Grouped on COR-SO

Figure Number K5.1 - 6W
Figure ID
Table

Effect Pupil-Q*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at

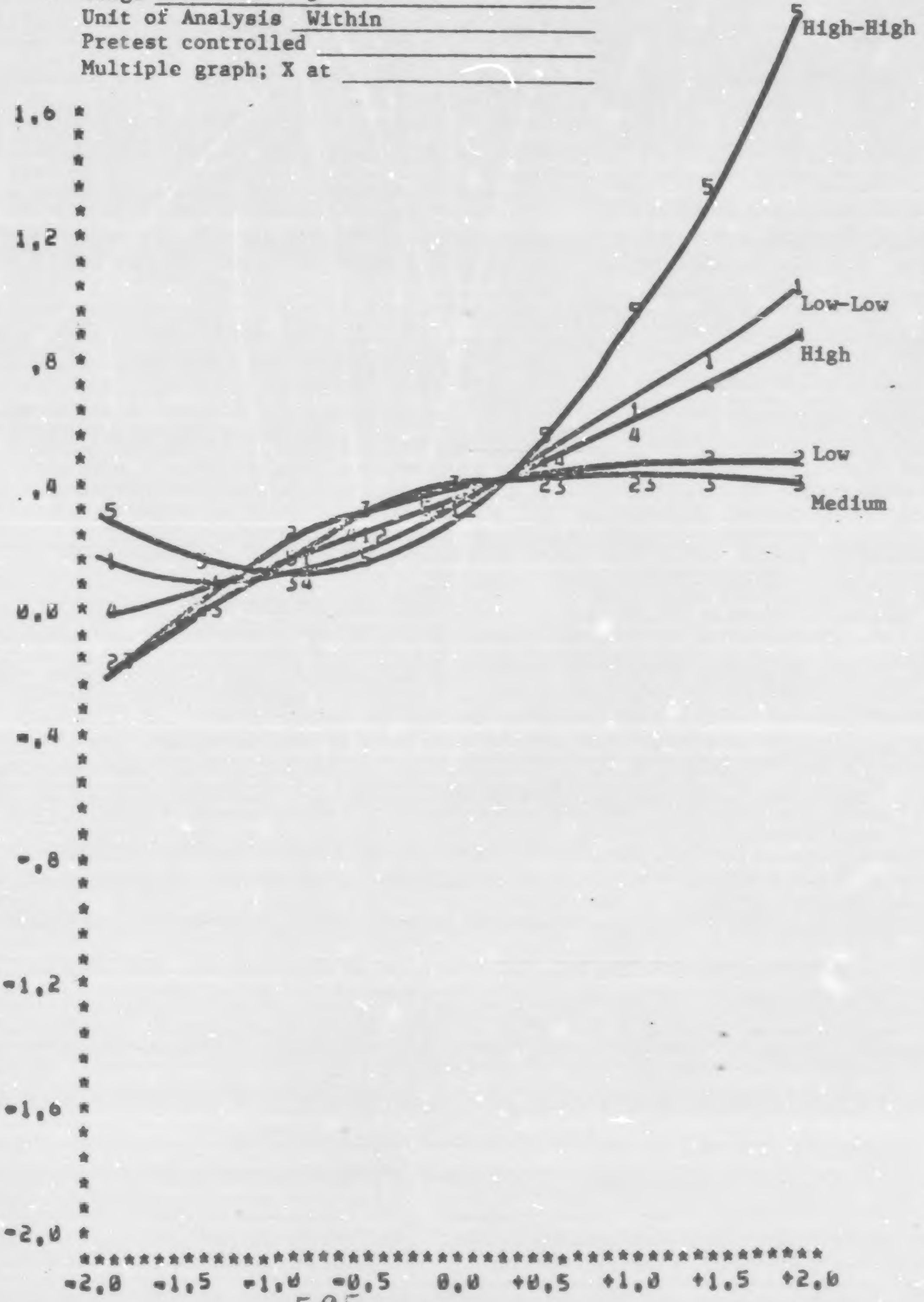


FIGURE V-111

Y-Axis (Criterion) SSC-C Post
X-Axis (Predictor) SSC-Pre
Grouped on COR-SO

Figure Number K5.1 - 8W
Figure ID
Table

Effect Pretest*Teacher
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at

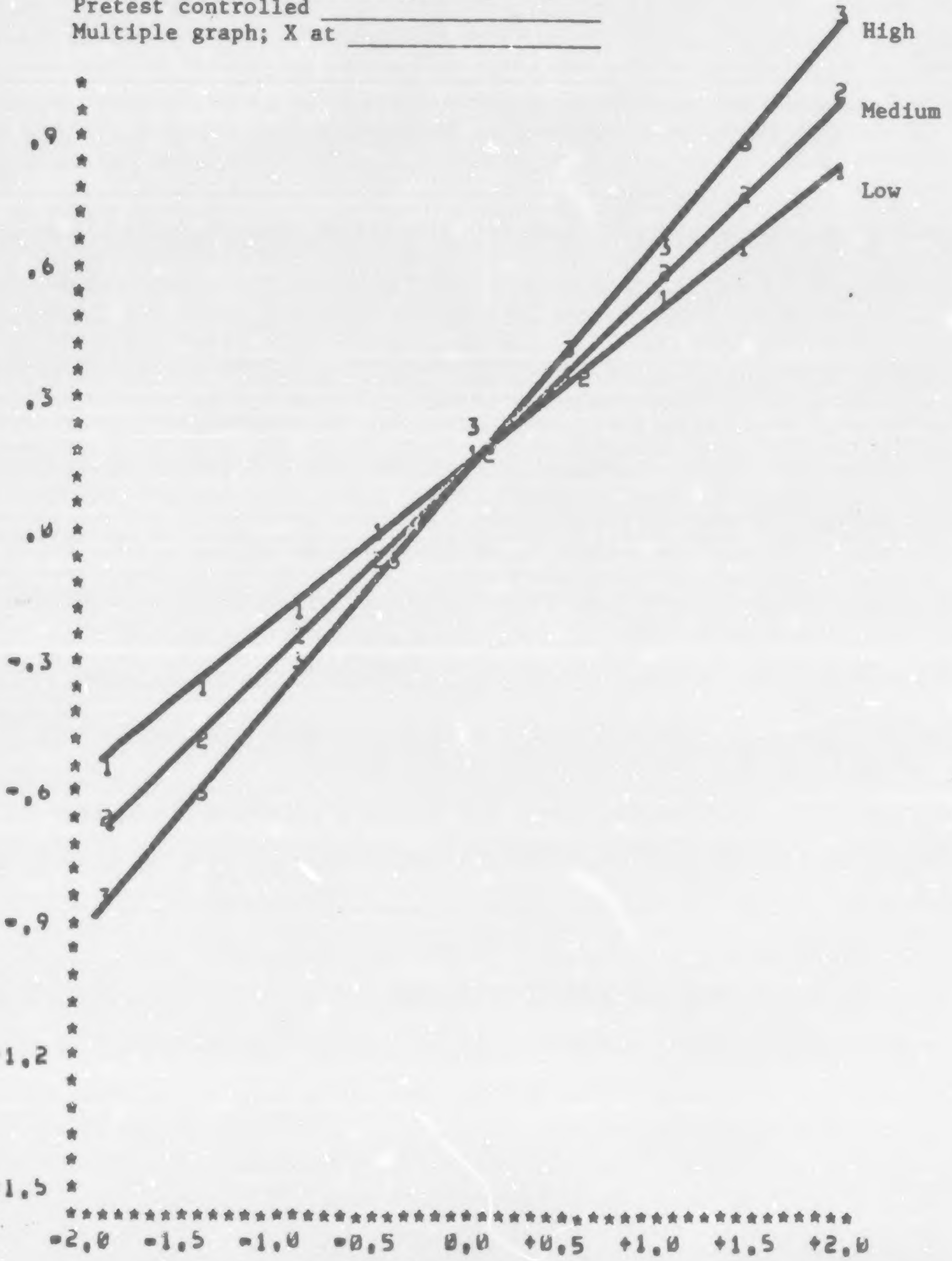
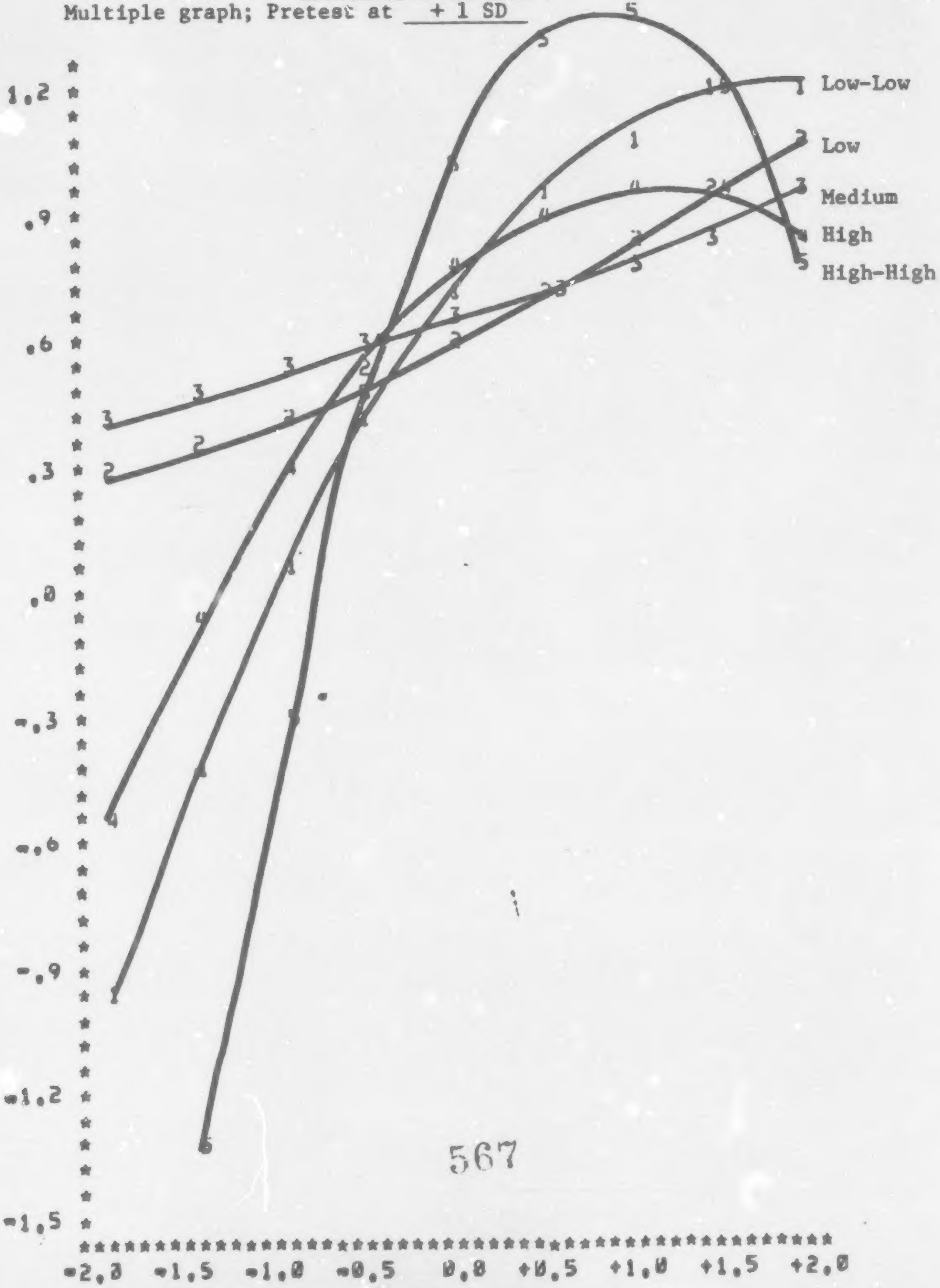


FIGURE V-112

Y-Axis (Criterion) SSC-C Post
X-Axis (Predictor) BRS-SR
Grouped on COR-KU
Figure Number K5.1 - 9W
Figure ID
Table

Effect Pretest*Pupil*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; Pretest at + 1 SD



567

FIGURE V-113

Y-Axis (Criterion) SSC-C Post
X-Axis (Predictor) BRS-SR
Grouped on COR-KU

Figure Number K5.1 - 10W
Figure ID
Table

Effect Pretest*Pupil*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; Pretest at Mean

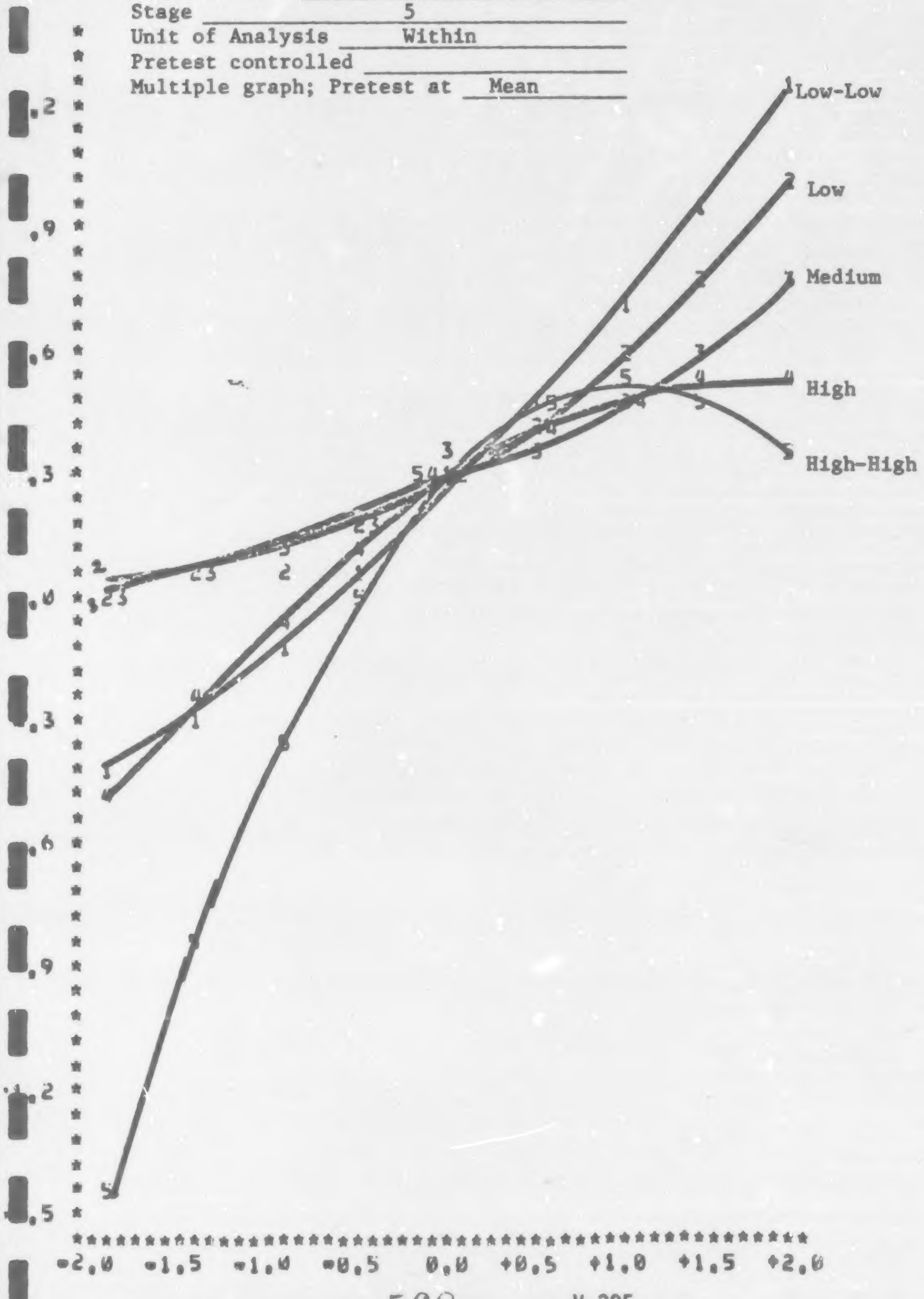


FIGURE V-114

Y-Axis (Criterion) SSC-C Post
X-Axis (Predictor) BRS-SR
Grouped on COR-KU

Figure Number K5.1 -7W
Figure ID
Table

Effect Pretest*Pupil*Teacher-Q
Year and site Kentucky
Stage 5
Unit of Analysis Within
Pretest controlled
Multiple graph; X at

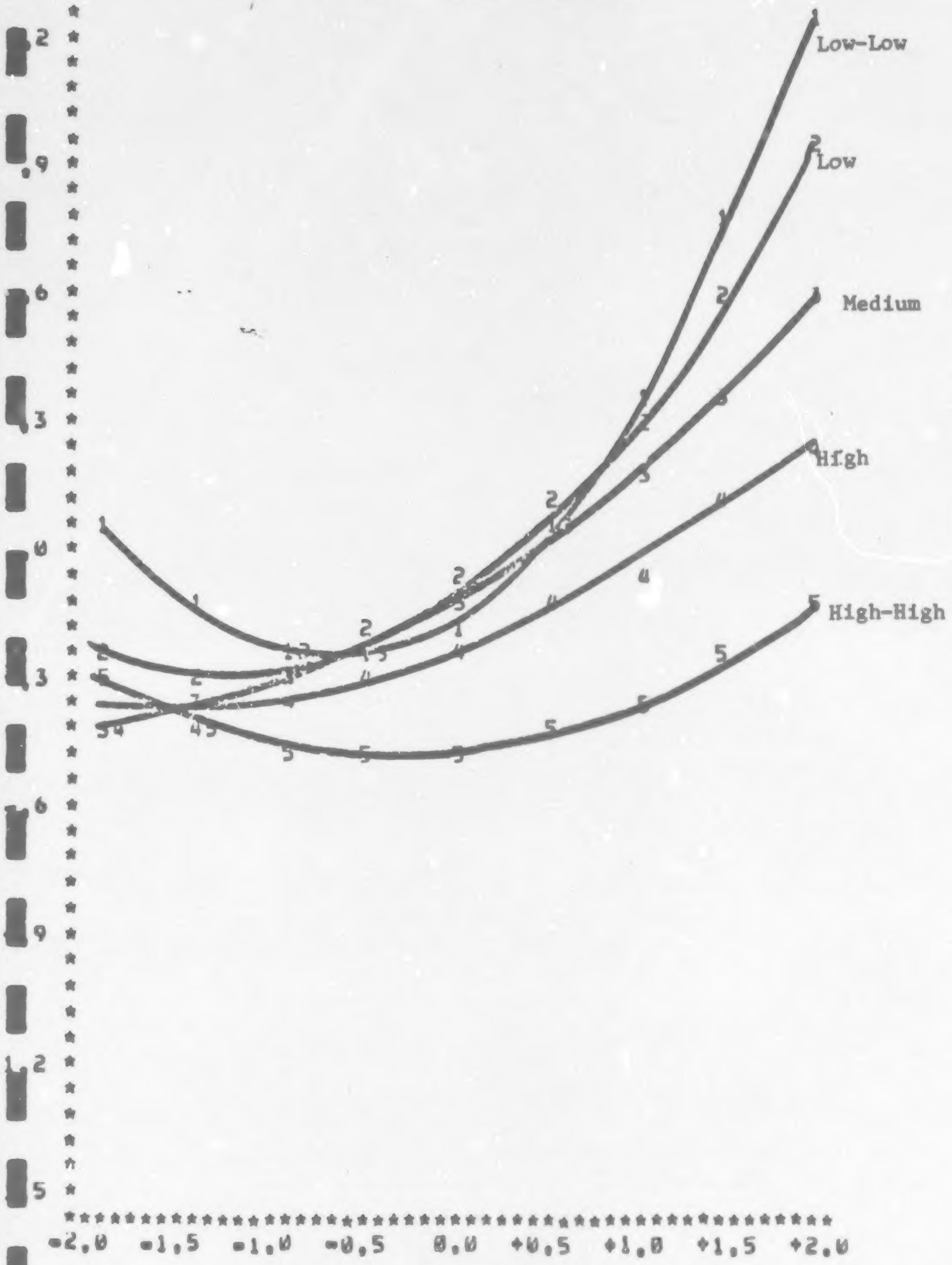


FIGURE V-115

Y-Axis (Criterion) BRS-OR (Regressed Change)
X-Axis (Predictor) SES
Grouped on COR-SO
Figure Number 5.2 - 5B
Figure ID
Table

Effect Pupil*Teacher-Q
Year and site Austin II
Stage 5
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

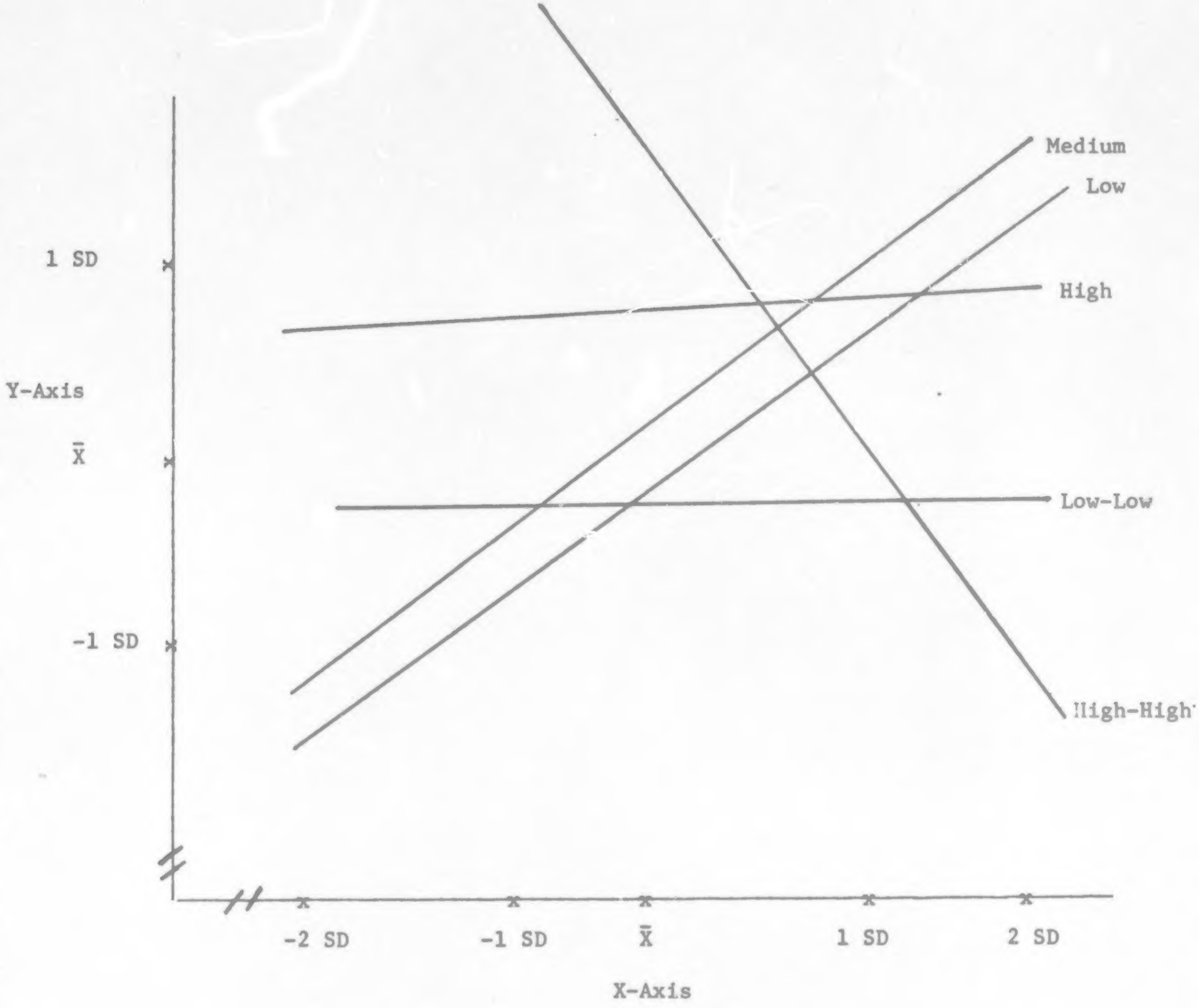


FIGURE V-116

Y-Axis (Criterion) BRS-OR (Reg. change)
Figure Number 5.2 -4B
X-Axis (Predictor) GMG-3
Figure ID
Grouped on COR-SO
Table

Effect Pupil*Teacher-Q
Year and site Austin II
Stage 5
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

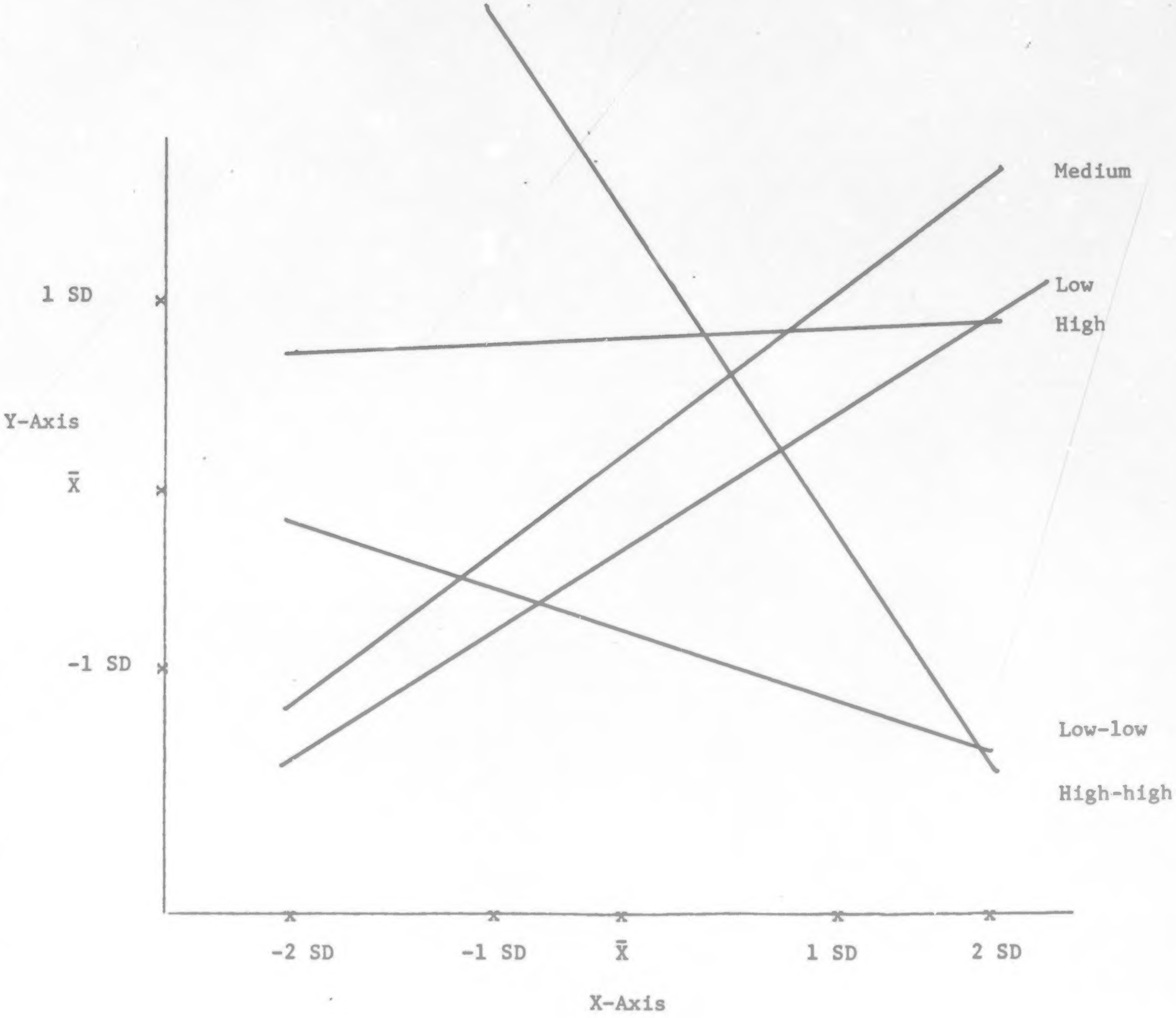
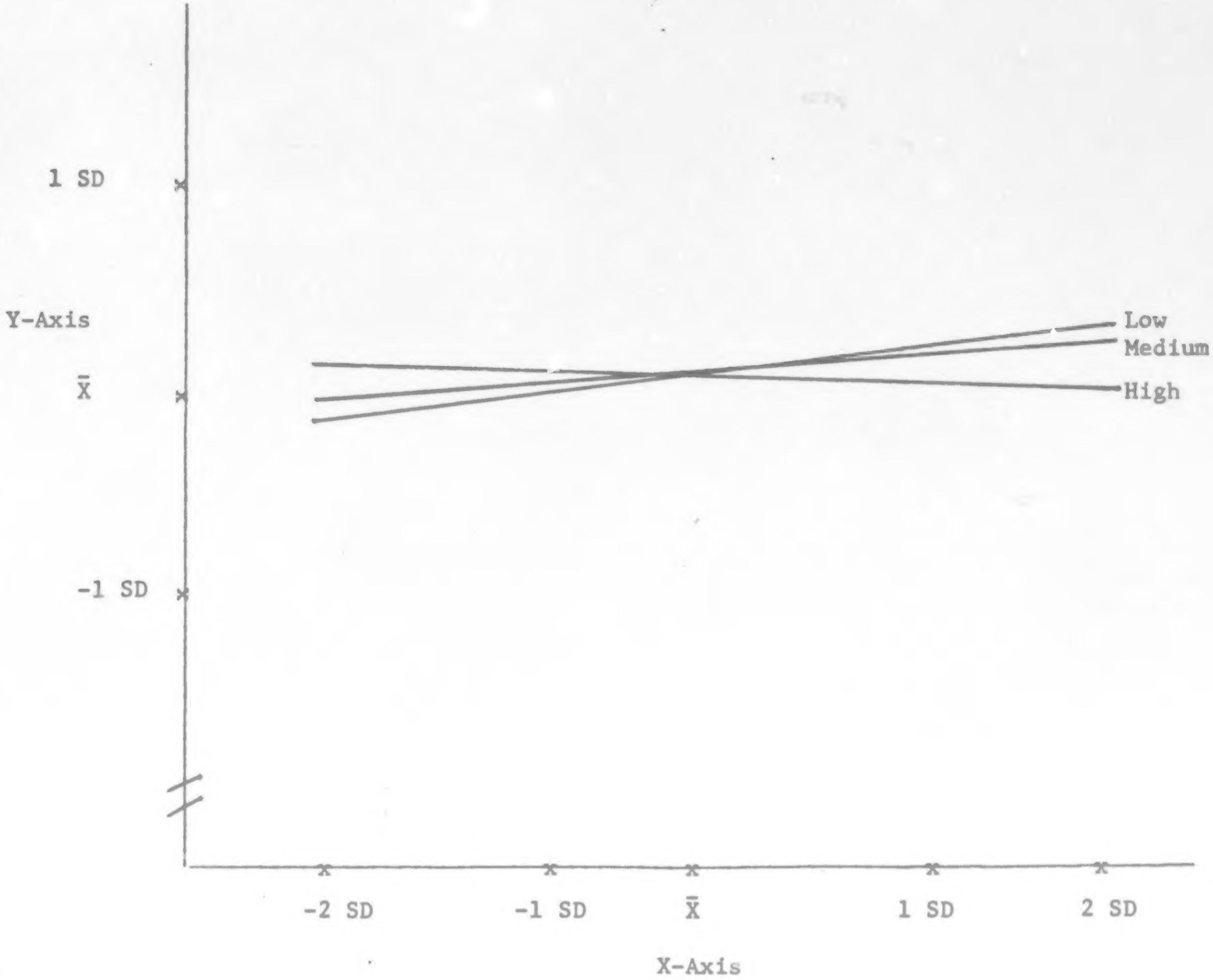


FIGURE V-117

Y-Axis (Criterion)	BRS-OR (Reg. change)	Figure Number	5.2 - 7W
X-Axis (Predictor)	SES	Figure ID	
Grouped on	COR-SO	Table	

Effect Pupil*Teacher-Q
Year and site Austin II
Stage 5
Unit of Analysis Within
Pretest controlled Yes
Multiple graph; X at



CHAPTER VI

TYPES OF TEACHERS, TYPES OF PUPILS, AND THEIR INTERACTING EFFECTS ON OUTCOMES OF SCHOOLING

The most fine-grained analysis of the data in this study, described in Chapter IV, separately assesses the effects of each presage or process variable on one student outcome variable at a time. Done in both between-class and within-class fashion, this affords identification of significant relationships that involve even small sub-groups of students, as accurately as the present state of the art permits. Such an approach has the disadvantage, however, that it cannot quantitatively examine relationships between different overall patterns of teaching behavior, on the one hand, and different overall patterns of pupil characteristics (pupil types), as these affect pupil outcomes of schooling.

Consequently, a supplementary analysis was done which does look at the interacting effects of teacher types and pupil types on pupil outcomes. In the process, it first examines whether there are differentiable types of teachers and pupils, and what properties characterize each empirically identified group of people who make up a type. Instead of explaining the variance of one variable in terms of its association with one or more other variables measured on the same people, the approach to be described here attempts to identify clusters or types of people who have distinctly different patterns or syndromes of attitudes and behavior over a series of measures considered simultaneously. The clustering method used for this analysis is called "Hierarchical Grouping" (Ward, 1963). It is a stepwise procedure which begins with N one-person "groups" and at each stage combines the two most similar profiles of group means. Normally, only the last ten or so steps in this process are of interest. Selection of an "optimum" number of clusters is rather arbitrary. Considerations for this decision include the number of people in each of the clusters, the successive increases in within-group variance at each stage, and the interpretability of the profiles of group means.

In the analyses to be reported here, a profile of variables was established for individual students, and another set of variables was used for their teachers. To avoid as much as possible the non-independence of pupils within classes, only pre-test measures were used in the pupil profile when there was a choice. Once the profiles were identified and each child or teacher was assigned to the type he/she most closely resembled, the groups of teachers and pupils were separately compared on other available measures, such as demographic characteristics. Finally, child and teacher types were considered together in examining differential change over the school year on a series of child measures.

Types of Pupils

The seven variables selected to describe pupils are listed below. They include self-descriptions, peer descriptions, and an objective performance measure, representing attitudes as well as behavior.

1. School Sentiment Index - Total (SSI)
2. Student Sentence Completion - Attitude (SCA)
3. Student Sentence Completion - Coping (SCC)
4. Piers-Harris Children's Self-Concept (PH)
5. Behavior Rating Scale, Self-Rated (BRS)

6. Behavior Rating Scale, Other-Rated (BRO)

7. Comprehensive Test of Basic Skills (ACH)

Of the 1,657 pupils available in the Austin Year I sample, 992 had valid scores on all seven variables and were included in the grouping analysis. Because of computer program limitations, the grouping was carried out in two stages. Separate groupings of samples of 250, 250, 250, and 242 pupils were carried to the ten-group stage in each case, and the ten group-mean profiles were retained. The resulting 40 profiles were then submitted to a final clustering.

The four-group stage of the final clustering was deemed the most parsimonious and interpretable. The four types which were identified are described numerically in Table 1, graphically in Figure 1, and verbally below.

Type A. Poor Achievers with Positive Attitudes

The profile shows a steady, downward progression in scores from attitudes toward school, through self-esteem, to behavior and achievement.

Type B. Poor Achievers with Negative Attitudes

This profile is below average on all measures, especially self-esteem.

Type C. High Achievers with Positive Attitudes

Although not as high on behavior and achievement as Type D, this profile is above average in all respects.

Type D. High Achievers with Negative Attitudes

This profile is just the opposite of Type A, with negative attitudes, moderate self-esteem, and the highest scores on behavior ratings and achievement.

TABLE 1

GROUP MEAN PROFILES OF FOUR PUPIL TYPES

Variable (z-scaled)	Types A	B	C	D
SSI	.52	-.58	.76	-.79
SCA	.67	-.80	.87	-.77
SCC	.35	-.70	1.02	-.83
PH	-.19	-1.10	1.04	.28
BRS	-.79	-.74	1.12	.21
BRO	-.69	-.50	.38	.88
ACH	-1.15	-.36	.52	.91
N Pupils	201	265	305	221

Analysis of variance comparisons of these four type groups using the profile variables would be meaningless since the grouping procedure maximizes mean differences and minimizes within-group variance. Table 2, however, summarizes a series of ANOVA's using variables other than those included in the profile.

TABLE 2

COMPARISONS OF PUPIL TYPE GROUPS *

Variable		Chance	Type			
		P	A	B	C	D
SET		.0001	282	261	308	265
SES		.0001	176	168	142	137
ABS		.0001	110	120	87	87
Sex	M	.02	+ 1	+17	-21	+ 3
	F		- 1	-17	+21	- 3
Ethnic	A	.0001	-41	-17	+21	+36
Group*	B		+30	+ 9	-17	-23
	C		+11	+ 7	- 4	-14

Sex and ethnic group values = observed - expected frequency

* A = Anglo, B = Black, C = Mexican-American

Students' evaluations of their teachers (individual SET score) were highest for the positive-attitude groups, as would be expected. The social class variable (SES) is reverse-scaled, and the two groups (C and D) showing the best behavior and achievement were from higher status families. Frequency of absences from school (ABS) was also lower in groups C and D.

The association of sex and type was significant; group B (generally negative) contains more boys, while group C (generally positive) contains more girls. The association of type and ethnic group was also significant. The general pattern seems to be that the two low attitude/achievement groups have fewer Anglos and more minority students, with the reverse being true of the two high attitude/achievement groups.

Types of Teachers

The Austin Year I sample included 53 teachers. Variables obtained from self-reported attitudes, from observer ratings, and from pupil evaluations were available on all teachers, and seven were selected for the teacher profile.

1. Classroom Observation - Kindly, Understanding (KU)
2. Classroom Observation - Systematic, Organized (SO)
3. Classroom Observation - Stimulating, Inventive (SI)
4. Student Evaluation of Teaching, Class Mean (SET)
5. Classroom Observation - Pupil Academic Orientation (PAO)

The 53 teacher profiles were submitted to the stepwise clustering procedure, and the three-group stage was chosen as both parsimonious and interpretable. Table 3 contains the means of the three type groups on the seven variables; they are shown graphically in Figure 2, and they are described verbally below.

The groups were most strongly identified by their high, average, or low adult observer ratings on the three Ryans factors (KU, SO, SI) and on the factor that describes pupils' classroom behavior (PAO). The pupil evaluation measure (SET) paralleled the adult observer ratings, though with less distance between the average and low groups.

TABLE 3

GROUP MEAN PROFILES OF THREE TEACHER TYPES

Variable	Types		
(z-scaled)	High	Average	Low
KU	1.19	-.20	-1.11
SO	.90	.08	-1.25
SI	.98	-.13	-.97
SET	.86	-.30	-.50
PAO	1.02	-.08	-1.11
N Teachers	17	20	16

Most of the teachers were Anglo women; there were not enough men, or minority women, to compare the groups with regard to sex or ethnic type. They did not differ significantly on age, degree obtained, or years of teaching experience. Of the seven scales of the Adjective Self-Description instrument, only the first, Social Attitude, showed a significant (p = .04) difference among group means (H = 331, A = 344, L = 308); the low teachers described themselves as somewhat less cordial and pleasant.

Teacher Type/Pupil Type Interactions

The first question that arises when pupil types and teacher types are considered together is whether the various types of pupils are distributed randomly among the three types of teachers. They were not, in Austin Year I. This non-random sorting of pupils was not done by the school system, but by the members of each four-teacher team in the first week or two of school. Students were randomly assigned, in groups of 100, to the teacher teams in each school. Thereafter, however, the four teachers within each team closely observed the performance skills of individual students in the first weeks of school and collaboratively decided how to sort the students, assign them to one or another of four classes, and match a teacher with each class. To varying degrees in different teams, this approached homogeneous grouping of students according to their entering level of academic skills. The avowed purpose of this sorting was to enhance student learning by clustering them in such a way that they could be given the most appropriate books and other materials from the limited supply available. (The reading level of these students, for example, ranged from grade one to grade 12 at this "sixth grade" level.) The teachers within each team collectively decided, too, which "class" of students would be taken be each teacher.

The data in Table 4 indicate that there was a significant tendency for this process to match students who started the year as high achievers with positive attitudes, with teachers who were subsequently rated high by both adult observers and students; and, even more frequently, not to match such students with low rated teachers. (The teachers, themselves, of course, had no way of knowing how the observers or students would evaluate their teaching.) There was a strong tendency, on the other hand, for students who started out as low achievers with negative attitudes to be assigned to low teachers, not to average or high teachers. The other two types of students, high achievers with negative attitudes and low achievers with positive attitudes, were more or less randomly distributed among the three types of teachers.

The matching of well-motivated achievers with high teachers almost certainly was intended to maximize the learning opportunities for these students. The matching of low achieving, undermotivated students with low teachers, judging from the discussions within the teacher teams, was not, on the other hand, a cynical decision to abandon the "losers" to the "least effective" teachers. Indeed, as some of the findings in Chapter V illustrate, some of the students in this least-promising group made better gains in performance or attitude when matched with low teachers than when assigned to high teachers. Furthermore, as Table 6 shows, when placed with low teachers, they showed more improvement in achievement and in attitude toward school then when assigned to average teachers. Any interpretation of these facts can only be speculative. Many of the low teachers may have created a less intellectually demanding atmosphere which made it easier for poor students to feel fairly comfortable and make some progress. The somewhat more homogeneous nature of the student groups in the classes of high and low teachers may also have helped poor students feel less overwhelmed by peer competition in the low teacher classes.

Whatever the specific dynamics may have been, the highly informal, intuitive process by which the teacher teams matched students and teachers tended to have especially beneficial results for students who were high achievers to begin with (a gain-maximizing strategy, perhaps); and, at least in attitude, the low achievers with good initial attitudes were even more positive by the end of the year. Only the low achieving students with negative attitudes did not improve their lot. Whether it is even possible for teachers to alter the entrenched negative attitudes and improve the very deficient skills of such students, given the inescapable limitations of mass instruction, may be a fair question. In any case, the partial pre-sorting of student types B and C into the classes of low and high teachers, respectively, does appear to have had some of the positive effects the teachers intended; it was not just favoritism toward the good students and rejection of the poor students.

TABLE 4

DISTRIBUTION OF PUPIL TYPES AMONG TEACHER TYPES *

Teacher Type	Pupil Type A	B	C	D
High	-2	-11	+12	+2
Average	+5	-13	+ 5	+4
Low	-3	+26	-17	-6

* Observed - expected frequencies

$x^2 = 20.1$, df = 6, p = .003

Effects on Pupil Outcomes

The final series of analyses concerns changes in pupil attitudes and behavior over the school year as a function of teacher type, pupil type, and the interaction between teacher and pupil type. For each of a series of dependent variables, two kinds of statistical procedure were employed, both of which have inherent problems of interpretation. One method is a three-way analysis of variance, two between and one within factors, pupil type by teacher type by pre-post. The problem is that the type groups differ markedly on the pre-test; to what extent are differential changes due to that fact? The other procedure, analysis of covariance, adjusts post-test scores for pre-test level before comparing type groups. The trouble with this is that the adjustment distorts to an unknown extent the actual nature of the groups, saying in effect, if they had been equal on the pre-test, what would we expect on the post-test?

Table 5 contains the results of the analyses of variance of eight measures for which pre- and post- pupil data were available, and Table 6 contains the results of the corresponding analyses of covariance. The values appearing in Table 5 are the absolute differences between pre- and post-means. Those in Table 6, however, are arbitrarily scaled so that the lowest value is zero. In only one case was a result significant in one analysis and not in the other. In many cases, however, the pattern of scores across the four or three type groups shifted markedly. Generally speaking, the results of the analysis of covariance are more consistent and interpretable.

TABLE 5

PRE-POST CHANGES OF PUPIL AND TEACHER TYPES

Variable	Chance p			Pupil Type				Teacher Type		
	P	T	PxT	A	B	C	D	H	A	L
SET	.05	.0002	ns	-27*	-12	-14	-13	-4	-29	-15*
SCA	.0001	.03	ns	-21	+ 2	-10	+ 6	-2	- 6	-10
SCC	.0001	ns	ns	-24	- 2	- 4	+ 9			
PH	.0001	.02	.01	-26*	+41	- 1	+ 2	+8	+16	-13*
ACH	.009	.004	ns	+10	- 6	- 2	- 8	+1	-11	+ 5
SSI-T	.0001	.0001	ns	-125	-45	-57	-30	+108	0	+ 9
SSI-AL	.0001	.005	ns	-96	- 9	-34	+29	+5	-39	-48
SSI-AS	.0001	.01	.04	-145	+ 7	-57	+74	+10	-63	-60

TABLE 6

ADJUSTED POST-TEST LEVELS OF PUPIL AND TEACHER TYPES

Variable	Chance p			Pupil Type				Teacher Type		
	P	T	PxT	A	B	C	D	H	A	L
SET	.0001	.0001	ns	6*	0	25	1	35	0	3*
SCA	.0001	.01	ns	2	0	18	11	9	4	0
SCC	.0001	ns	ns	4	0	34	16			
PH	.0001	ns	.02	8*	0	95	60			
ACH	.0003	.006	ns	4	0	24	18	13	0	9
SSI-T	.0001	.0001	ns	11	0	119	39	108	0	9
SSI-AL	.0001	.004	ns	50	0	133	71	60	21	0
SSI-AS	.0001	.004	.02	36	0	160	98	70	0	18

* Large mean differences between pupil types on pre-test may account for the large differences in results from the two analyses on these two outcomes.

For all eight variables, pupil Type B (low attitudes and achievement) showed the least improvement or greatest decline compared to their entry scores, while pupil Type C (positive attitudes and achievement) showed the most improvement or the least decline. The other two types were intermediate, with Type D doing somewhat better than Type A, generally. On the six significant teacher type effects, students of the high teachers always showed the best results, but the pupils of the low teachers often gained somewhat more than those of the average teachers.

Two of the eight measures produced significant interactions between pupil and teacher types, with regard to pre-post change. Self-esteem (PH) of Type A and Type D pupils was severely lessened by low teachers, compared to the other teacher types, whereas Type B pupils were least favorably affected by high teachers (see Table 7). Attitudes toward school decreased least among Type A pupils who had high teachers and actually improved among Type B pupils with low teachers, as shown in Table 8. The latter result might be explained by the weaker academic emphasis that characterized these teachers. The greatest relative gains were made by Types A, C, and D students who had high teachers.

TABLE 7

PUPIL TYPE/TEACHER TYPE INTERACTION ON PH

Absolute Changes

Teacher	Pupil Type			
Type	A	B	C	D
High	- 6	+23	+6	+ 9
Average	+ 2	+43	-2	+21
Low	-75	+57	-8	-23

Adjusted Post-test Levels

Teacher	Pupil Type			
Type	A	B	C	D
High	65	26	149	110
Average	76	53	138	114
Low	0	58	132	87

TABLE 8

PUPIL TYPE/TEACHER TYPE INTERACTION ON SSI-AS

Absolute Changes

Teacher Type	Pupil Type			
	A	B	C	D
High	-48	-26	-11	+125
Average	-200	-18	-64	+ 31
Low	-187	+64	-98	+ 67

Adjusted Post-test Levels

Teacher Type	Pupil Type			
	A	B	C	D
High	164	9	230	161
Average	18	0	170	87
Low	1	77	147	146

In the Austin Year I sample, both teacher behavior and pupil characteristics had systematic effects on pupil outcomes. Most of the teacher effects (Table 6) were such that the students of teachers who were rated high in effectiveness, by both students and adult observers, showed the most positive (or least negative) changes over the year on all outcomes showing a significant difference. In a seeming contradiction, low teachers' students showed slightly more positive changes than the students of average-rated teachers in achievement and in attitude toward school. At least part of the explanation may be that in placing more low achieving/negative attitude students (Type B) with low teachers (Table 4), the class-assignment process created a closer match in academic expectations, and possibly in coping skills, between teachers and students. In any event, it is clear that a low rating, by either adult observers or students, does not always imply that such teachers will be least effective with all students. As Tables 6, 7, and 8 show, such teachers may actually have a better impact on certain sub-groups of students (the poorest performers) than teachers rated average. The one strong, general effect was the greater positive impact on all student outcomes of high-rated teachers, except for their less favorable effect on the self-esteem of Type B students (low attitude and achievement).

Replication with Austin Year II Pupils

In the second year of Austin data collection, most instrumentation was the same as in Year I. A total of 1,520 pupils were measured, 900 of whom had complete data on the seven variables of the profile. A new instrument, Student Self Description, was a shortened version of the Piers-Harris measure of self-esteem. The Gates-MacGinitie vocabulary and comprehension total score was also used in place of the Year I social studies achievement measure.

A two-stage cluster analysis (250, 250, 250, and 150), paralleling that of Year I, was carried out with the Year II sample. The profiles of group means at the four-group stage of the final clustering may be found in Table 9. It is quite apparent that the same four patterns emerged here that were identified in the Year I sample.

TABLE 9

GROUP MEAN PROFILES FROM YEAR II TYPING OF PUPILS

Variable	Types			
(z-scaled)	A	B	C	D
SSI	.46	-1.12	1.07	-.80
SCA	.65	-1.07	.89	-.87
SCC	.48	-1.16	1.02	-.77
SSD (PH)	.28	- .86	1.15	-.75
BRS	.12	-1.40	.95	-.32
BRO	-.22	-1.70	.95	.08
ACH (CT)	-.55	-1.54	.99	.32
N Pupils	331	72	198	299

The numbers in the four groups varied in size to a greater extent than they did in Year I, particularly in a lower frequency of Type B pupils. To maximize comparability of results in subsequent analyses, we decided to assign pupils to type groups, not on the basis of the new profiles (Table 9), but on the basis of similarity to the Year I profiles (Table 1). When this was done, the numbers for the four groups were 181, 262, 311, and 146. The reason for the increase in the Type B count is that, although uniformly low, the Year II profile is more extreme than that of Year I.

Analyses of other variables using the Year II sample are reported in Table 10. Although the same pattern of means appears for the days-absent variable (ABS), it was not statistically significant in Year II. An additional post-test variable, How This Class Makes Me Feel (HOW), was also available; as expected, the two negative attitude groups had the lowest means. Patterns of values on the other variables are virtually identical to those obtained with the Year I sample.

TABLE 10

COMPARISONS OF PUPIL TYPE GROUPS *

(AUSTIN II)

Variable		Chance	Type			
		P	A	B	C	D
HOW		.0001	657	569	748	637
SET		.0001	739	657	805	647
SES		.0001	570	526	432	411
ABS		ns	8.0	8.3	7.2	6.9
Sex	M	.001	+1	+26	-22	-5
	F		-1	-26	+22	+5
Ethnic	A	.0001	-34	- 7	+20	+21
Group	B		+21	+ 2	-10	-13
	C		+14	+ 4	-10	- 8

* Sex and ethnic group values = observed - expected frequency

Replication with Austin Year II Teachers

The Year II data set included information about 43 teachers who had scores on all seven of the profile variables. Of these teachers, 32 appeared in both years, and therefore the grouping analysis results for Year II, shown in Table 11, were expected to be very much like those obtained with Year I data. To ensure comparability of results of further analyses, and to obtain a more equal distribution of cases across the three levels, the Year II teachers were assigned on the basis of Year I criterion profiles, yielding numbers of 12 high, 22 average, and nine low-rated teachers.

TABLE 11

GROUP MEAN PROFILES FROM YEAR II TYPING OF TEACHERS

(AUSTIN II)

Variable	Type (z-scores)		
	High	Average	Low
COR-KU	1.37	-.02	-1.58
COR-SO	.64	.15	-2.05
COR-SI	2.29	-.23	-.93
SET	.47	.04	-.95
COR-P (PAO)	1.53	-.05	-1.48
N Teachers	5	32	6

When Year I and Year II type assignments were compared for the 32 teachers who appeared in both samples, the frequencies shown in Table 12 were obtained. The consistency was statistically significant (p = .006). Eight teachers were rated higher in Year II, five were rated lower, and 19 remained at the same level. There were no shifts from high to low, or vice versa.

TABLE 12

TYPE ASSIGNMENTS IN YEAR I VERSUS YEAR II

(NUMBER OF TEACHERS)

		Year I				
		H	A	L	Missing	Totals
Year II	H	8	3	0	1	12
	A	3	7	5	7	22
	L	0	2	4	3	9
	Missing	6	8	7		21
	Totals	17	20	16	11	

The association between teacher type and pupil type was stronger (p .0001) than in Year I, with the high teachers having more of the abler students (C and D), while average and low teachers had more of the other two types. These data are shown in Table 13. The greater sorting of students almost certainly happened because the classes studied were Reading classes, and here the teachers strove to maximize homogeneity of grouping according to level of reading skill.

TABLE 13

DISTRIBUTION OF PUPIL TYPES AMONG TEACHER TYPES *

(AUSTIN II)

Teacher Type	Pupil Type A	 B	 C	 D
High	-32	-21	+33	+20
Average	+20	+ 7	-13	-15
Low	+12	+14	-20	-29

* Observed - expected frequencies

$x^2 = 73.5$, df = 6, p = .0001

In parallel with the analyses of Year I data with regard to differential pre-post change among the teacher and pupil types, eight analyses of variance and corresponding covariance analyses were carried out. Two variables were added (BRS, self-described academic coping skill; and BRO, peer-described academic coping skill).

TABLE 14

PRE-POST CHANGES OF PUPIL AND TEACHER TYPES

(AUSTIN II)

Variable	Chance p			Pupil Type				Teacher Type		
	P	T	PxT	A	B	C	D	H	A	L
SET	.02	.0001	ns	-72	-12	-54	-1	+35	-33	-89
SSD (PH)	.0001	ns	ns	-20	+81	-29	+41	+ 4	+23	+27
SSI	.04	ns	ns	-40	- 1	-60	- 3	- 4	-32	-46
ACH (GM)	ns	ns	ns	+40	+40	+34	+36	+38	+33	+43
BRS	.02	ns	ns	+81	+84	+66	+73	+76	+77	+74
BRO	ns	ns	ns	+63	+64	+70	+66	+68	+66	+64
SCA	.02	ns	ns	- 9	+ 2	- 9	- 3	- 4	-10	- 3
SCC	.02	ns	ns	-12	- 3	-10	0	- 5	-10	- 5

TABLE 15

ADJUSTED POST-TEST LEVELS OF PUPIL AND TEACHER TYPES

(AUSTIN II)

Variable	Chance p			Pupil Type				Teacher Type		
	P	T	PxT	A	B	C	D	H	A	L
SET	ns	.0001	ns					27	19	0
SSD (PH)	ns	ns	ns							
SSI	.0003	ns	ns	15	0	20	13			
ACH (GM)	ns	.03	ns					5	0	1
BRS	.002	ns	ns	7	0	17	7			
BRO	.01	ns	ns	0	0	10	4			
SCA	.0001	ns	ns	21	0	30	10			
SCC	.0001	.03	ns	11	0	25	12	5	0	10

In general, the Year II results were less significant statistically than those in Year I, but were quite consistent with regard to the patterns of changes that emerged. As was the case in Year I, pupil type B showed less positive change than the other groups, wherever group differences appeared. Teachers rated high showed the most increase in pupil evaluations of them, as would be expected. There was no ceiling effect on this measure. The average teachers' students lost somewhat, and the low teachers' students lost even more over the school year in student evaluation. There was also a tendency for the high teachers to obtain greater residual gains in achievement from their pupils, and for both the high and low teachers to have less student loss on self-reported coping (SSC-C) than the average teachers.

Replication with Kentucky Sample

Finally, we report a grouping analysis of data obtained in a quite different kind of school district in a state distant from Texas. The same seven variables used to define the Austin Year I profile were employed. Of the 811 pupils in the sample, 648 had complete data for all seven variables. The profiles of group means may be found in Table 16.

TABLE 16

GROUP MEAN PUPIL PROFILES FROM KENTUCKY SAMPLE

Variable (z-scaled)	Types A	B	C	D
SSI	.19	-.74	.80	.29
SCA	.47	-.65	.86	-.10
SCC	.60	-.61	1.01	-.40
PH	-.18	-.76	.78	.58
BRS	-.38	-.61	.79	.47
BRO	-.75	-.26	.46	.48
ACH	-.88	-.14	.38	.44
N Pupils	101	247	149	151

Correspondence between profiles for Types A and C is quite clear. Type B in the two samples also matched quite well, except for somewhat better achievement in the Kentucky sample. Type D had the same high performance as the Austin sample, but the negative attitudes were not nearly as evident. There is a kind of jaundiced, hypercritical attitude, along with an (unearned) sense of superiority among some upper-middle class youth in Austin which is much more uncommon in Daviess County, Kentucky. Such youth made up a substantial part of Type D in Austin.

The three groups of teachers in Kentucky were analogous to the three groups in Austin. As Table 17 indicates, these were high, average, and low, as rated by both adult observers and by their students (SET). Since the low group contained only three teachers, it was omitted from subsequent comparisons.

As in both Austin samples, pupil types were not randomly distributed across the teacher types. Table 18 shows that high teachers had disproportionately more students of Type D (high achieving/slightly negative attitudes) and fewer students of Type A (low achieving/mildly positive attitudes). The average teachers had the opposite mix of students, more Type A and fewer Type D. Students of Types B and C were randomly sorted across teachers. Thus, by some informal process of administrative judgment, possibly involving teacher judgments as well, in the Daviess County schools the high-rated teachers were given more of the slightly negative but academically effective students, leaving more of the non-difficult low achievers to the average teachers. This is not quite the same as the way students were assigned in Austin. There, in Year I, the high teachers were more likely to get more of Type C (high achievers/positive attitudes) and fewer of Type B (low achieving/negative attitudes). In Austin Year II, the high teachers got more of both Types C and D, fewer of both A and B (low achievers), with low teachers getting the opposite proportions of students. Nonetheless, in all three samples, there was non-random matching, with some or all of the high-achieving students more often placed with high-rated teachers.

This was a purposeful strategy in Austin. It tended to maximize the gains of the most capable and most motivated students (Type C) in both years, on most of the outcome measures. In Year II, this was accomplished without loss to Type A students, at least.

In Kentucky (see Tables 19 and 20), the Type C and D students gained substantially, while Types A and B did not, overall. Specifically, Type D students showed the greatest achievement gain of the four groups, and substantial gains in self-esteem, self-described coping skill, and general attitude. This was second only to the gains of the Type C students, who had the most positive attitudes as well as academic prowess. In Kentucky, Type A students lost ground in achievement, self-esteem, and self-described coping skill. Here, the advantage of teacher-student matching for the good students was counterbalanced by a loss to the less competent, less motivated students.

TABLE 17

GROUP MEAN PROFILE OF TEACHER TYPES

(KENTUCKY)

Variable	Type (z-scores)		
	Low	Average	High
COR-KU	-2.0	-.2	.8
COR-SO	-2.0	-.2	.8
COR-SI	-1.6	-.3	.9
COR-Pupil (PAO)	-2.0	-.2	.9
SET	-1.4	-.5	1.1
N Teachers	3	14	10

TABLE 18

DISTRIBUTION OF PUPIL TYPES AMONG TEACHER TYPES

(KENTUCKY)

Teacher	Pupil Type			
Type	A	B	C	D
High	-14	+3	0	+12
Average	+14	-3	0	-12

(3 Lows omitted)

Observed - expected frequencies

$x^2 = 11.11$, df = 3, p = .01

TABLE 19

PRE-POST CHANGES OF PUPIL AND TEACHER TYPES

(KENTUCKY)

Variable	Chance P			Pupil Type				Teacher Type	
	P	T	PxT	A	B	C	D	High	Average
SET	ns	.00	ns					-41	-97
SCA	.00	ns	ns*	-43	45	-11	48		*
SCC	.00	.00	ns	-82	24	-31	68*	18	-28
PH	.00	.05	ns	6	80	16	24*	42	17*
ACH	.00	ns	ns	- 9	-4	7	21		

TABLE 20

ADJUSTED POST-TEST LEVELS OF PUPIL AND TEACHER TYPES

Variable	Chance P			Pupil Type				Teacher Type	
	P	T	PxT	A	B	C	D	High	Average
SET		.000	ns					90	0
SCA	.000	.026	.027*	25	0	95	53	26	0*
SCC	.000	.003	.059	1	0	81	67	37	0
PH	.000	ns	ns	0	35	77	67*		*
ACH	.000	ns	ns	0	21	41	61*		

* The large mean differences between pupil types on the pre-test may account for the differences in the results of these analyses

There was a significant interaction effect of teacher type and pupil type on regressed gain in general attitude (SCA) (Table 20). High teachers' students of Types A, C, and D made significantly more positive gains than those of Type B, who actually grew even more negative. The positive effect of high teachers was most marked in the case of students with positive initial attitudes (Types C and A). Students with good initial attitudes grew even more positive while those with actively negative attitudes grew worse over the year.

On self-described coping skills (SCC), there was a near-significant effect (p .059). On this measure, high teachers' Type C students showed much more gain over the year than Type C students who were in low teachers' classes. Type B students also showed a moderate difference of this same kind. Type A students had about the same amount of loss in coping scores whether they had high or low teachers. Type D students showed about the same amount of gain in coping score whichever type of teacher they had.

These interaction effects were different from those found in Austin Year I. For whatever reason, the "same level" of teaching behavior affected pupils differently in the three samples, in a number of particulars. Some factors which were not assessed by the measures used in the study appear to have influenced the outcomes substantially. Non-measured differences in teachers, pupils, or both, led to different relationships among the "same" measured variables. Circumstances do, indeed, alter cases.

To say that the high teachers produced substantially better effects than average or low teachers in all three samples (for all but SSC in Austin II) would be to make an overstated, partially untrue generalization. Such a conclusion is true for many or most of the students; but it is not true for certain sub-groups of students -- and which students these are, differs sample to sample. Even if high teachers might be good for most students, moreover, in any real-life setting it is impossible to assign students only to such teachers; there are never enough to go around. The observed deviations from the generalization, however, indicate that teachers of the average and low types can actually have better effects for certain types of students in certain circumstances. Since the effects differ from one year to the next, even in the same schools with many of the same teachers (Austin I and II), it seems clear that it will always be necessary to watch closely what happens as a result of any one style of teaching, with each new class of students, each year.

Even by the measure of the imperfect instruments and the very limited "togetherness" of teachers and pupils in this study, it is clear that teachers have significant effects on pupil outcomes. It is also clear that there is a strong tendency for pupils to persist in their individual patterns of attitude and performance. The good students tended to get better over the year, and the poorer students got worse, particularly in Austin I and Kentucky. Individual behavior, as represented by the pupil types, has thus proved stable over time in this study.

Because of the partial "nesting" of high teachers with able students and low teachers with less competent students, however, it is impossible to tell precisely, from this kind of analysis, whether the differential gains of the student groups were due to the initial differences in student competence, differences in teacher behavior, or a combination of both. That is why the other analyses (Chapter IV) were performed.

FIGURE 1

SCORE PROFILES OF THE FOUR PUPIL TYPES

Y-Axis (Criterion) Group mean

X-Axis (Predictor) Variables (Pre)

Grouped on

Effect

Year and site Austin I

Unit of Analysis General

Pretest controlled

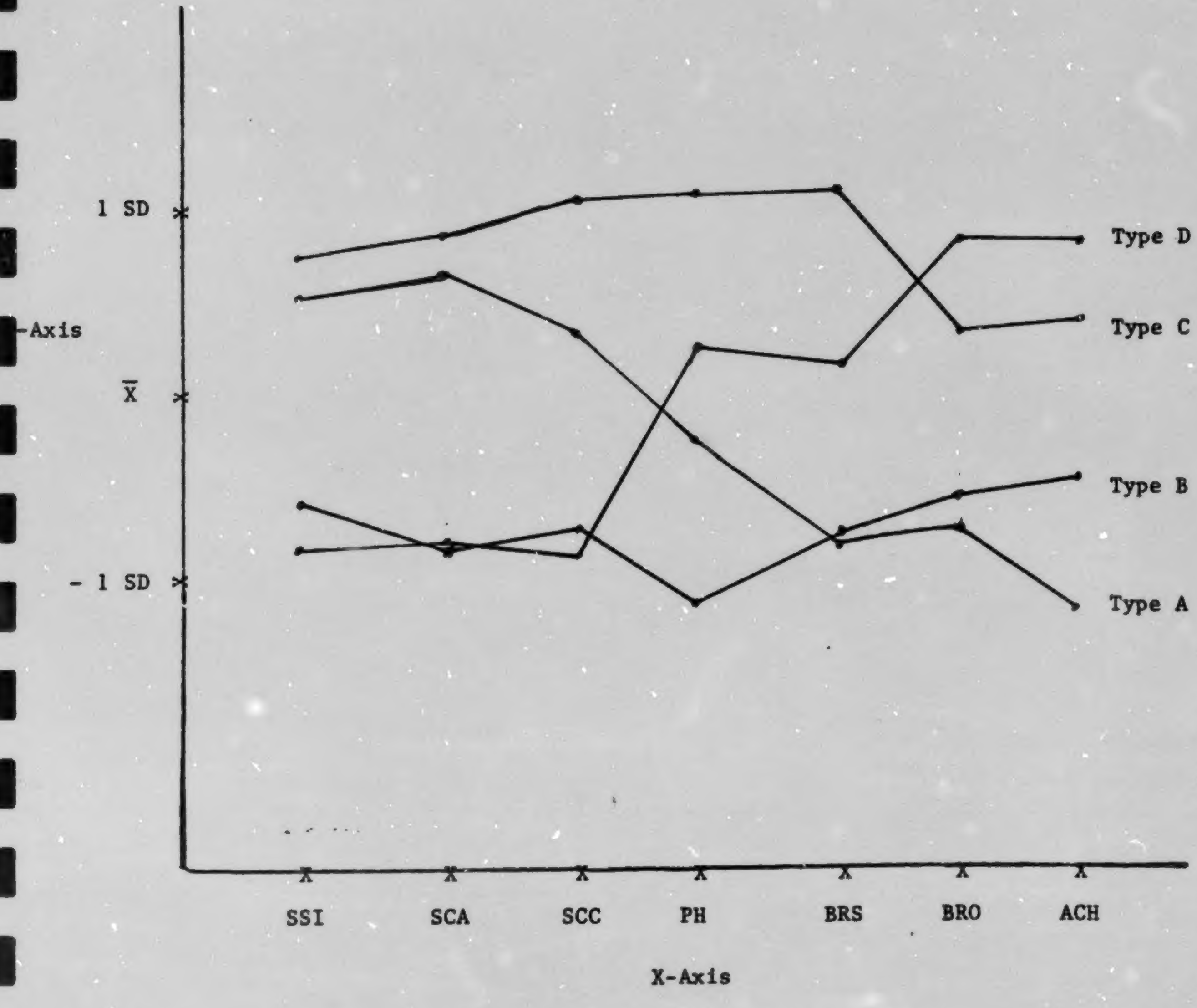


FIGURE 2

SCORE PROFILES OF THE THREE TEACHER TYPES

Y-Axis (Criterion) Group mean
X-Axis (Predictor) Teacher Characteristics
Grouped on

Effect
Year and site Austin I
Unit of Analysis Between Class
Pretest controlled Yes

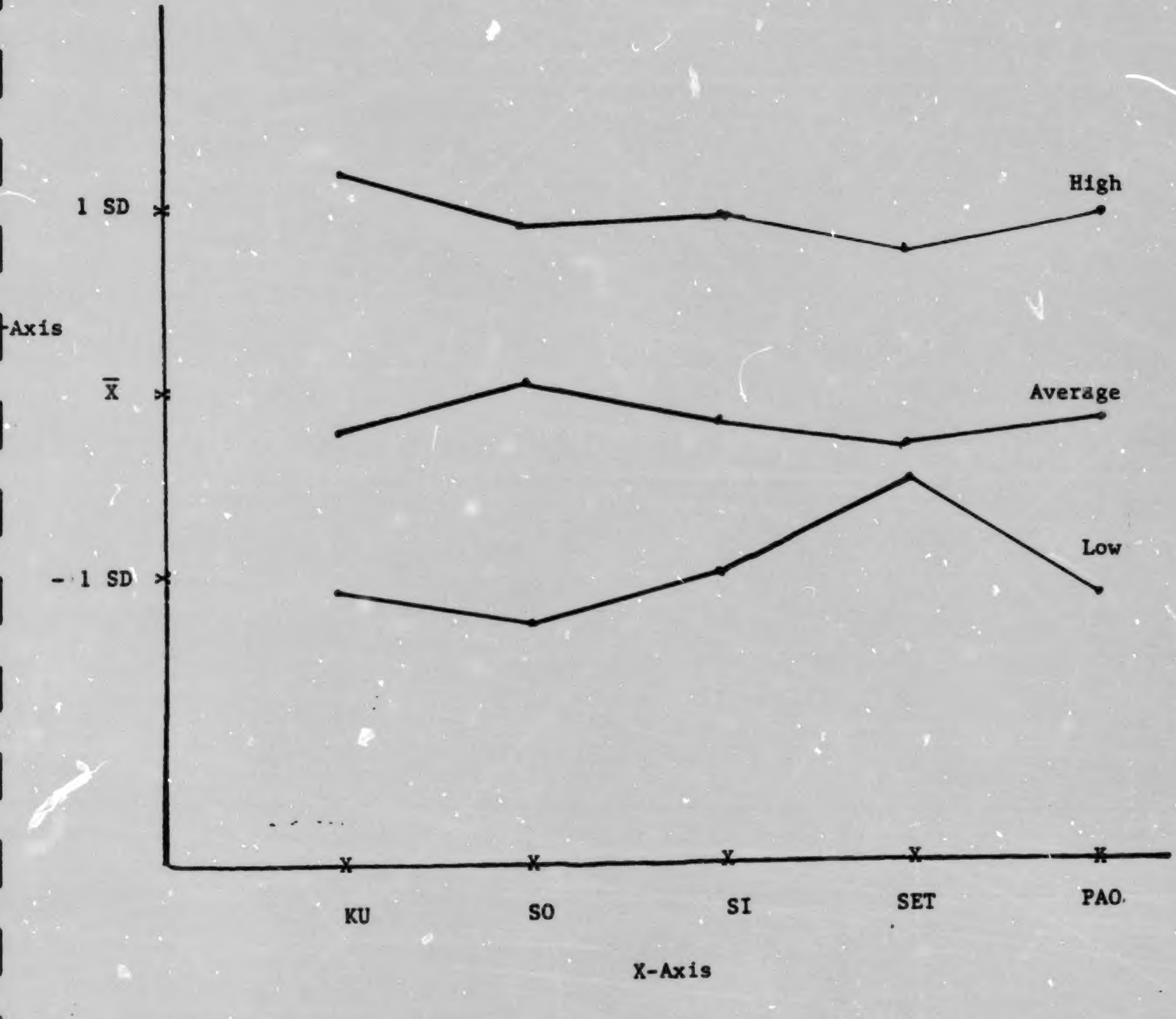
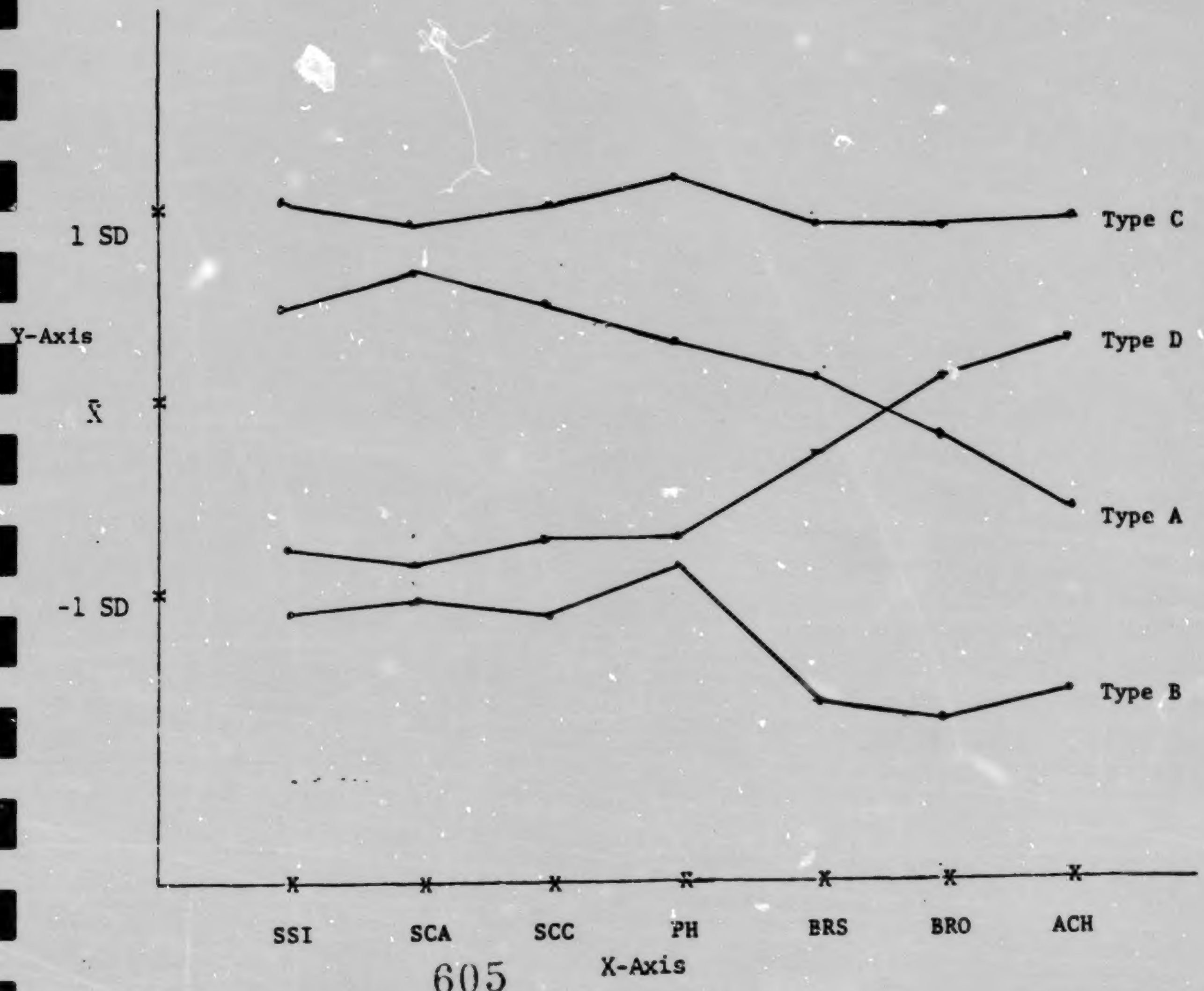


FIGURE 3

SCORE PROFILES OF THE FOUR PUPIL TYPES

Y-Axis (Criterion)	Group mean	Effect	
X-Axis (Predictor)	Variables (Pre)	Year and site	Austin II
Grouped on		Unit of Analysis	General
		Pretest controlled	



605

FIGURE 4

SCORE PROFILES OF THE THREE TEACHER TYPES

Y-Axis (Criterion) Group mean
X-Axis (Predictor) Teacher characteristics
Grouped on ____

Effect ____
Year and site Austin II
Unit of Analysis Between Class
Pretest controlled Yes

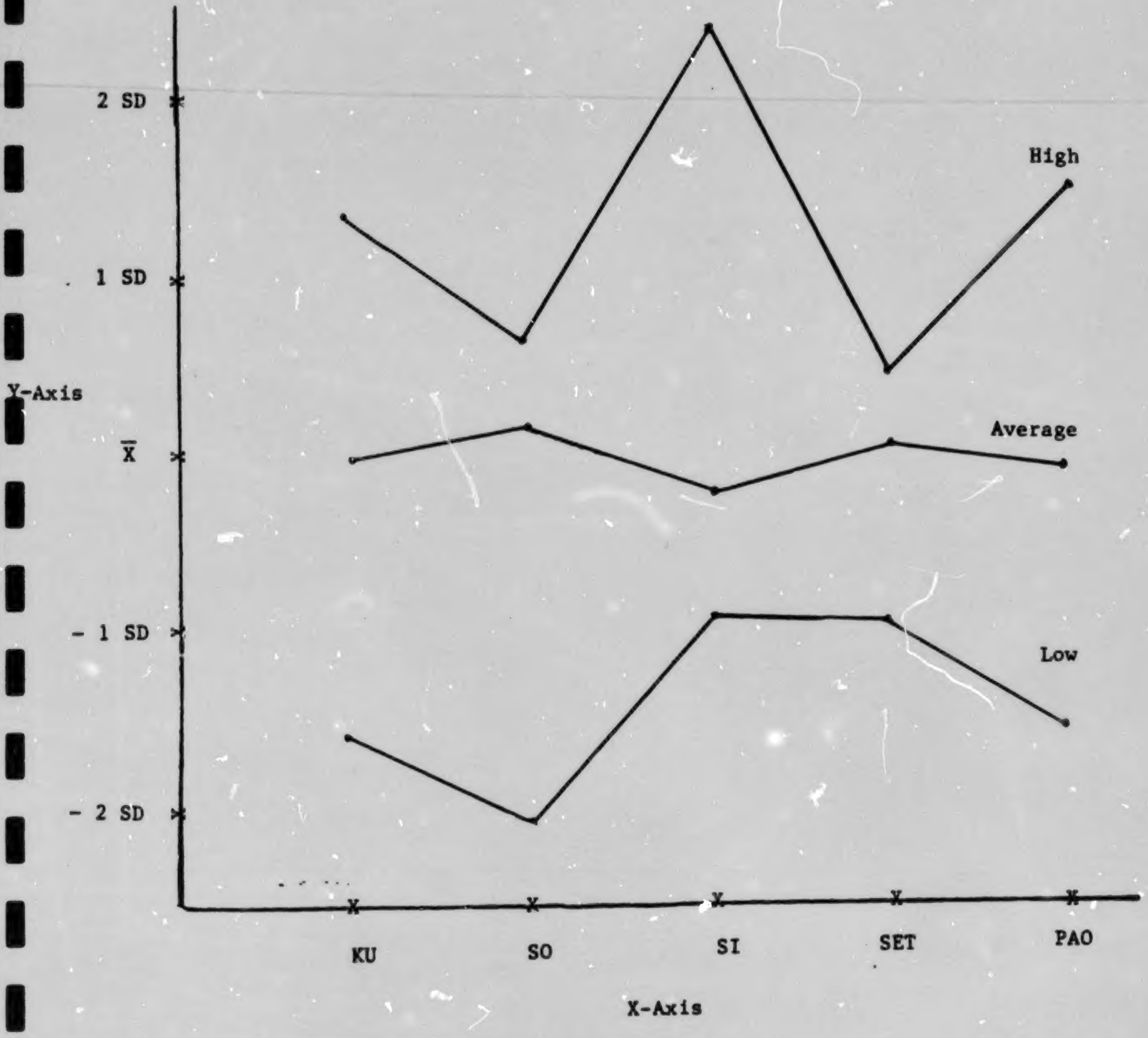


FIGURE 5

SCORE PROFILES OF THE FOUR PUPIL TYPES

Y-Axis (Criterion) Group mean

X-Axis (Predictor) Variables (Pre)

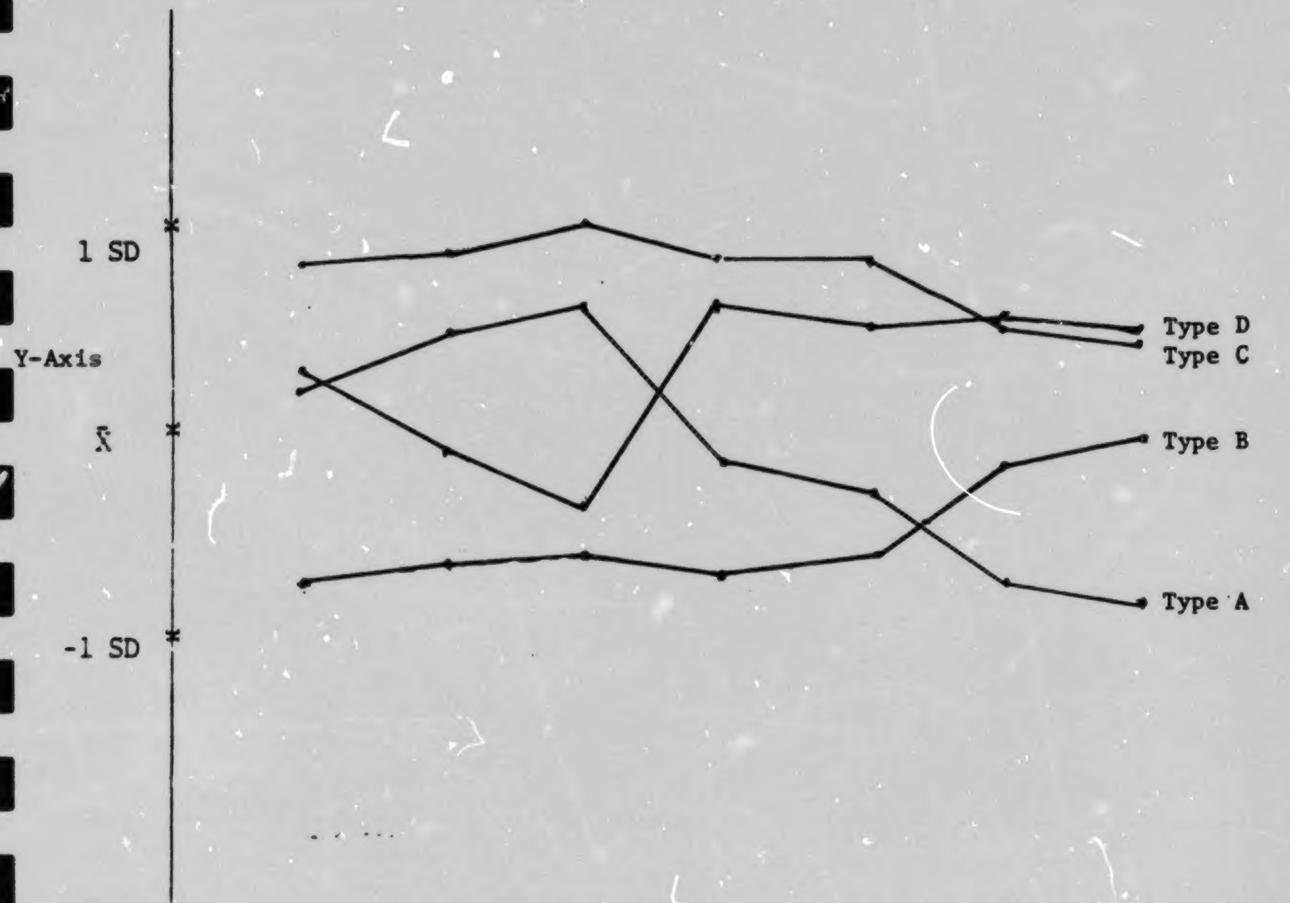
Grouped on ____

Effect ____

Year and site Kentucky

Unit of Analysis General

Pretest controlled ____

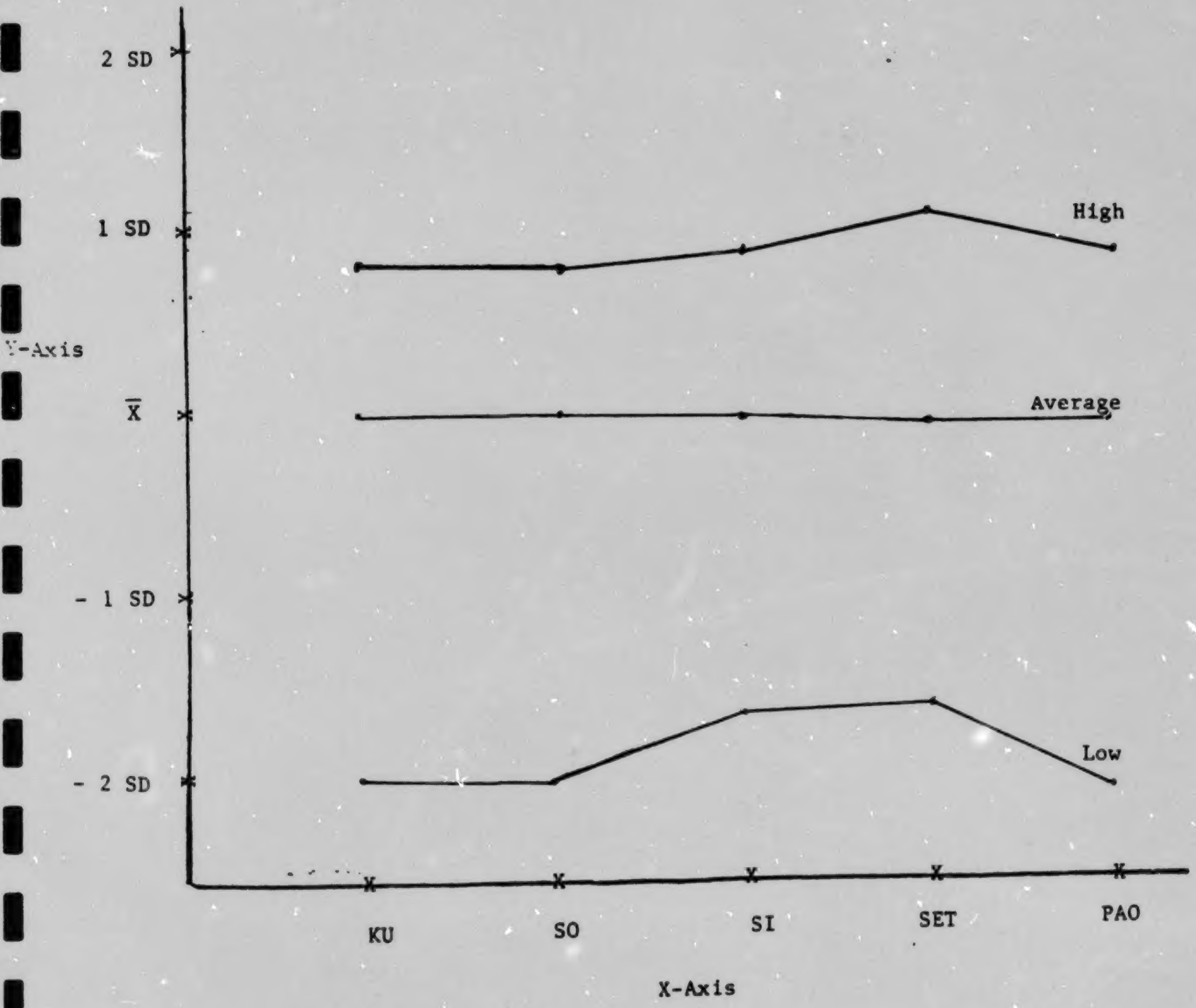


607

FIGURE 6

SCORE PROFILES OF THE THREE TEACHER TYPES

Y-Axis (Criterion) Group mean
X-Axis (Predictor) Teacher characteristics
Grouped on ______
Effect ______
Year and site Kentucky
Unit of Analysis Between Class
Pretest controlled ______



CHAPTER VII

THE EFFECTS OF STUDENT CHARACTERISTICS ON LEARNING OUTCOMES

Learning Outcome: Academic Achievement
As Measured By The Comprehensive Test of Basic Skills (CTBS)
And Gates-Macginitie Reading Test (GMG)

Academic achievement was measured by the CTBS in Austin I and Kentucky and by the GMG in Austin II. The achievement data for Kentucky were complex, since different levels of achievement tests were used, in the several grades. Therefore, analysis of the Kentucky sample was confined to within-class analysis, using deviations from the class mean as the scores.

The Relationship Between Initial Achievement and Other Student Characteristics at the Beginning of the Year

At the beginning of the year, student achievement (CTBS) showed significant relationships to several other student characteristics, in all three sites. These correlations are presented in Table ACH 1. In Austin I, the results of the Pierson-Product correlations indicated that achievement was related to peer-rated academic coping skills (BRS-OR, r=.41), self-rated academic coping (BRS-SR, r=.30), self-esteem (P-H), r=.26), attitude toward school (SSI, r=.08), general attitude (SSC-A, r=.07), and self-rated general coping skills (SSC-C, r=.07). The pupil correlates of initial achievement (GMG-3) level in Austin II are similar to those present in the Austin I sample: self-esteem (SSC, r=.28), attitude toward school (SSI, r=.18), general attitude (SSC-A, r=.06), self-report coping skill (SSC-C, r=.13; BRS-SR, r=.14), and peer-rated coping skill (BRS-OR, r=.36). The replications of relatively large correlations of achievement with both self-esteem and coping ability lend further credence to the importance of these constructs for school achievement. These two variables were also highly correlated with achievement in the Kentucky site. The correlation with peer-rated academic coping was, .42; with self-esteem, .21; with self-rated academic coping, .20; and with attitude toward school, .12. These replicated results suggest that coping and self-esteem are likely to prove correlated with academic achievement in other samples of American students. These results are consistent with previous research results which found a strong relationship between academic achievement and coping (McKinney et al, 1975; Peck et al, 1977; Spaulding, 1971) and between achievement and self-esteem (Bridgeman & Shipman, 1978; Rogers, Smith, & Coleman, 1978; Rubin, 1978; Ruben, Darle, & Sandidge, 1977; West & Fish, 1974).

In all samples, as might be expected, pre-test achievement scores were very positively related to general academic coping skill. Peer ratings correlated most strongly. Self-rated coping skill had lower, but still positive correlations. In one sense, this finding supports the validity of peer ratings and achievement tests as partially overlapping, partially different ways of estimating students' academic competence. Considering the strong social desirability of positive self-judgements on this highly valued set of skills, it is not surprising that the two self-report instruments were less closely related to tested achievement. They are almost certainly less valid, in most cases, than the collective rating by a set of classmates.

Yet, insofar as the self-esteem measure inquired about much the same issues of perceived effectiveness and interpersonal acceptance (correlating .40 to .52 with the BRS-SR scores; see Table SE1, below), it appears that there is a fair amount of validity in the self-esteem scores, if tested achievement be taken as a criterion.

Overall, there is a substantial amount of reciprocal relatedness among coping skill, self-esteem and achievement, as Proposition One originally proposed. The correlation of the simultaneous measures at the beginning of the school year proves nothing about the direction of the relationships, of course. Both theoretically and practically, though, it seems likely that a person's status on these measures reflects a continuing, reciprocal interplay, in which general coping skill fosters achievement, and vice versa; achievement fosters self-esteem and, to the degree it is realistic, self-esteem leads to better achievement.

The Effects of Student Characteristics on Regressed Change in Achievement

One test of the direction of these effects, in the present study, is the analysis of the effects of each pre-test on change over the year in the other characteristics, considered as outcomes. In these regression analyses, the part of self-esteem, for example, that is correlated with the achievement pre-test is removed when the effect of the achievement pre-test is removed from the achievement post. If the self-esteem pre-test then accounts for some of the remaining variance in post-test achievement, it must reflect a true effect of entering self-esteem on the subsequent learning that led to the achievement post-test. While the possibility remains that some other, unidentified, underlying factor is influencing both initial self-esteem and later achievement, the findings from this antecedent-consequent design are consistent with the hypothesis that self-esteem has a casual effect on application to study, and therefore on achievement gain.

Similarly, the generalized habits of initiative, persistence and cooperation with classmates and teachers, subsumed under the coping skill measures, should logically lead to improved achievement. If they do, this would be reflected in a significant relationship of pre-test coping skill to gain in achievement, over the year.

One other finding about the pre-test relationships seems noteworthy: general attitude toward life, and even attitude toward school, were linked only slightly with achievement status. It would seem a hopeful sign that low achievers, in particular, were not alienated from school. Insofar as attitudes may be significant motivators, at least there was just about as much reason for low achievers to try again, as for high achievers, in the school year that followed.

Several important facts need to be kept in mind in appraising the findings about achievement change over the year. Most important is the fact that the tests were not and could not be anything like a close match for the specific content that was actually covered in each class. That content was highly varied from class to class; and, even more, from student to student, according to their initial levels of knowledge of the subject, as estimated by the teacher from their performance in the early weeks of school. Items in the standardized tests were only distantly and partially related to what any one pupil studied, over the year.

Consequently, it seems reasonable to suppose that if any significant effect on achievement gain were found, through all the "noise" in the assessment process, the true relationship of the predictor to actual achievement-change probably was stronger that the "observed" relationship.

A second salient fact is that the pre and post achievement measures were highly correlated, in every sample (Between-class AI,.81; AII,.95; Within-class, AI,.74; AII,.81; Ky,.65). This has several important implications. First, it shows that such measures were relatively insensitive to any influences other than those which already had an effect on the pre-test scores. The pre-test achievement scores were already showing the effects, probably years-long effects, of such pupil characteristics as coping skill, self-esteem, and attitude toward school. If an additional effect showed itself over the year, the cumulative impact of that characteristic on achievement would seem to indicate a substantial relationship, of a general kind. For example, the relationship of previous coping skill to achievement-at-entry, the further effect of coping skill in this particular year must be added, in order to estimate the true strength of the general relationship of coping skill to academic achievement.

The effects of student characteristics on regressed change in achievement are presented in Table ACH 2. It is important to note that in Austin II, the strongest predictor of achievement in the within-class analysis was the classes themselves. Class predicted a striking 34.54%

of the achievement variance. This finding, unique to Austin II, indicates that there was much more ability grouping in these reading classes than in the social studies or language arts classes of the first year samples. This may explain why there were so few within-class results in Year II, as compared to Year I.

The Effects of Coping on Regressed Change in Achievement

In this study, coping is defined as those self-initiated, self-maintained, persistent, effective actions which a person takes to adapt to his/her environment. The more successful the adaptation, the better the coping skill. Peer-rated academic coping, BRS-OR, assessed active mastery of the school environment. BRS-SR measured the students' own perceptions of their academic coping skills, using the same scales as the peers. Most of the effects of coping on achievement found in this study involved the BRS-OR, the peer-rated academic coping measure. Self-ratings had fewer effects.

It makes intuitive sense that academic coping skills would influence the students' classroom learning. A primary requirement for classroom adaptation is to become facile in certain cognitive skills which are tested by achievement tests. Further, there are some well defined classroom coping behaviors which are generally assumed to facilitate learning: asking questions, paying attention, concentrating on problems, and so forth. One would therefore predict that, on the whole, generalized academic coping skills should facilitate achievement change. Such a prediction would be implied, though not proven, by a finding that entry-level coping skills (BRS-OR) are positively related to achievement change. A positive, linear effect was found in the within-class analysis in all three sample sites: Austin I (p .001, 1.30% V), Austin II (P .001, .42% V), and Kentucky (p .0001, 6.17% V).

A further, curvilinear effect was also present in Austin I, between-class as illustrated in Graph ACH 1. Better than average coping skill had a beneficial effect on gain in achievement; lower skill had little effect, either way. A curvilinear effect (p .01, 3.55% V) was also found in the between-class analysis of Austin I, when self-perceived general coping (SSC-C) was the predictor. This effect, illustrated in Graph ACH 2, shows that more gain in achievement took place in classes which were very low in their mean coping skill, or very high. Classes average in coping skill actually showed losses in achievement. It may have been relatively easy for the low-achieving, low coping classes to improve their scores. In any case, they did. High-coping classes made progress even though they tended to start out high in achievement. They appear to have been able to learn even more; and they tended to have somewhat better teachers (see Chapter VI).

Another interesting effect was also found in Austin I, within-class analysis, which further qualifies the relationship between academic coping and achievement change. The effect of coping level on achievement change was different for students at different levels on the achievement pre-test. This interaction effect (p .001, .96% V) was unique to Austin I, within-class analysis (Graph ACH 3). High initial achievers who were also good copers did much better on the post-test than average or poor copers. Average copers, in turn, did better than poor copers, if they were high achievers, initially. Students who scored below average in initial achievement, on the other hand, were unaffected by their coping skill. They improved less than the high achievers, no matter what their coping skill.

Most of the items in the BRS-coping instrument are concerned with those classroom behaviors which indicate a receptiveness to learning: (1) looks for help, (2) keeps his temper, (3) gets along with teachers, (4) works hard, (5) has good ideas, and so forth. Receptive behavior does not necessarily guarantee learning, however. The knowledge presented in a classroom presupposes a certain level of preliminary knowledge. Students who have a low level of preliminary achievement may therefore not learn much from material that is "over their heads", even if their behavior indicates a willing receptiveness. A student who does not understand the material will get very little out of a classroom, even if that student sits quietly and gets along with teacher and classmates.

The same kind of interaction effect was found when a general measure of coping behavior (SSC-C) was used, instead of the more classroom-specific BRS-OR (see Graph ACH 4). General, self-perceived coping ability interacted similarly with initial achievement in affecting achievement gain (p .005, .28% V).

It seems it may be more important for low achieving students to be given basic skills than it is for them to be taught receptive classroom behavior, when regular classroom material is being taught. It may be that if very basic skills were being taught, in a way closely geared to individual readiness, good coping behavior would then be more helpful to those who showed a low level of initial achievement.

The same type of interaction effect appeared when class means were used in between-class analysis in Austin I (xp^2, p .05, 2.73% V).

Class achievement change was affected by coping behavior only when the class was high on initial achievement (see Graph ACH 5). This result is consistent with the theory that in teaching-as-usual, receptive coping behavior is not, by itself, beneficial for low-achieving students. It is likely that the teachers altered their demands to conform somewhat to the level of the class, but they still had to use the standard curriculum and the available materials, most of which were geared to the sixth-grade "average". The present results seem to indicate that the standard curriculum did not repay effort for those students starting low in achievement, in the Austin I social studies classes. In Austin II and Kentucky, things were simpler: achievement gain was positively affected by (peer-rated) coping skill, in a linear fashion.

The Effects of Attitude Toward School and Life on Regressed Change in Achievement

Attitude toward school had a positive linear effect on achievement (p .01, .19% V) in the within-class analysis of Austin II, only. Positive attitude toward school, as expected, was conducive to gain in achievement. The effect was not as strong as the effects of coping and self-esteem on achievement (see Table ACH 2).

Attitude toward life in general interacted with initial achievement in its effect on gain in achievement in Austin I (p .01, 5.66% V). This result, illustrated in Graph ACH 6, indicates that better attitude led to greater achievement gain in classes with a high beginning achievement level. Conversely, in classes with low initial achievement, there was a negative relationship between attitude and achievement gain. It could be that general optimism in low achieving classes reduced students' sense of a need to work, and thus retarded their achievement. Alternatively, the classes with low initial achievement may have lacked the prerequisite academic skills to gain in achievement, even when they had a positive attitude. Low achievers who had very positive attitudes may have been unrealistically optimistic, and may not have put out sufficient effort to overcome their initial academic deficit.

The Effects of Self-Esteem on Regressed Change in Achievement

Self-esteem is a person's evaluation of himself, both in terms of self judgment and in the perception of how others evaluate him or her. Man is a social being. Evaluation by self and others forms a very large part of one's consciousness and one's feelings about self-adequacy. Self-esteem is akin to self-confidence: Can I perform a task? Can I improve myself through effort? Am I likely to be successful if I try? Consistency theory (Brown, 1965; Heider, 1958) would predict that a person who expects not to succeed will either choose an unrealistic goal or will exert insufficient effort. Such a person, by exerting insufficient or inappropriate effort, will tend to confirm his own expectation of failure.

Another way of viewing self-esteem is to use self theory (Adler, 19 ; Jower, 1973; Marlow, 1970) and the needs construction of Murray (1938). If a person has a high need for an adequate self-image, as most people do, then low self-esteem will tend to create a *prepotent* need, having the effect of partially blocking out other competing interests.

In this view, self-esteem is assumed to be an intrinsic, individual characteristic which is not rapidly affected by class effects, at the point of entry into any one class. The prediction was made, therefore, that self-esteem would be positively related to achievement change, both within and between classes. The findings show that, within classes, self-esteem level did indeed predict the achievement outcome of the student in Austin I (p .001, .39% V) and in Kentucky (p .0001, 1.36% V). However, there was no between-class effect of self-esteem on achievement in any of the samples, possibly because class mean differences in self-esteem were very much smaller than the class differences in achievement. Most of the teachers may also have adjusted their teaching materials and their expectations to the readiness of the class, and may therefore have evened out differences which could have been attributed to the small class differences in self-esteem. There were many remarks in teacher conversations and in the periodic teacher interviews that testified to such efforts. Apparently, however, teachers were not able to make as effective adjustments for individual students, to compensate for the much larger initial differences in self-esteem within classes. This is scarcely surprising, since they normally have no objective index of student self-esteem and since limited curricular materials make it harder to tailor differential assignments within classes than to select a roughly appropriate level of the standard texts to match the average levels of the classes' achievement and reading skill.

The linear effect on self-esteem was qualified by an interaction effect between self-esteem and initial achievement in the prediction of gain in achievement (p .01, .23% V). This result, found only in the within-class analysis of Austin I, is illustrated in Graph ACH 7. High self-esteem was conducive to gain in achievement only when initial achievement level was high. Level of self-esteem did not influence achievement gain where students' initial achievement was low. This interaction effect is similar to those reported on the effects of coping and general attitude. It lends a little support to the notion that prerequisite academic skills are needed before significant gain in achievement can occur. Students who had these prerequisite skills, had greater gain in achievement when their level of self-esteem was high, in the Austin I sample.

The Effects of Classroom Behavior on Regressed Gain in Achievement

The results indicating the effects of classroom behavior on regressed gain in achievement are presented in Table ACH 3. Time-on-task, academic coping, and social-emotional coping were the three types of classroom behaviors which were assessed; first, by observers; the latter two, by the teacher.

Time-on-Task. The results of Austin I, within-class analysis, indicated that time-on-task (TOT) interacted with the achievement pre-test (p .05, .45% V) in predicting achievement gain. Greater TOT facilitated learning, but only for those at the upper end of the initial achievement continuum (see Graph ACH 8). Thus, the importance of prerequisite academic skills in that sample was again supported by the findings. In Austin II, time-on-task (TOT) was also predictive in quadratic interaction with the pre-test (p .01, 2.48% V), in the between-class analysis (illustrated on Graph ACH 9). This result is congruent with the Austin I finding that TOT had a stronger effect on achievement outcome when initial achievement was above the mean. In Kentucky, there was also a quadratic interaction effect in the between-class analysis (p .0009, 2.47% V), showing the same pattern as Austin II..

Academic Coping. Academic coping had a positive linear effect on regressed gain in achievement in Austin I (p .001, 1.63% V) and Kentucky (p .0001, 5.79% V), in the within-class analysis. In Austin I, this same effect was found in the between-class analysis (p .04, 3.04% V). In Austin I, this same effect was found in the between-class analysis (p .04, 3.04% V). The more effective were students' and classes' academic coping behavior, the greater were their gains in achievement. The within-class finding, however, was qualified by a significant interaction effect between initial academic coping and initial achievement (p = .04, .42% V). This effect was unique to Austin I and is illustrated in in Graph ACH 10. This finding added a little more empirical support to the importance of initial prerequisite academic skills. Academic coping had a stronger positive effect on regressed change in achievement when students' initial academic skills were high. The curvilinear relationship found in Austin I, within-class analysis, further qualified the relationship between these variables. As illustrated in Graph ACH 11, students having greater than average coping skills showed the greatest improvement in achievement. Academic coping had little influence on achievement when the students' coping skills were below the mean. Some critical minimum level of coping skill seems to have been necessary, before it affected achievement.

Social-Emotional Coping. Social-emotional coping, like academic coping, had a positive linear effect on regressed gain in academic achievement (Austin I, p .001, 1.81% V; and Kentucky, p .0001, 3.37% V). This result from the within-class analysis indicates that the greater the level of social-emotional coping skill, the greater the gain in achievement. The results of Austin II, within-class analysis, yielded a curvilinear effect (p .001, .87% V) which is illustrated in Graph ACH 12. Social-emotional coping was conducive of gain in achievement only for students' coping skills were considerably above the mean. Below this level, coping skill did not facilitate achievement.

In Austin II, there was also a between-class curvilinear interaction effect between initial achievement and social-emotional coping (p .03, 1.5% V). This result, illustrated in Graph ACH 13, indicates that effective coping was conducive to gain in achievement for those classes whose initial achievement fell within the average range (1 SD below and above the mean). However, classes having an initial achievement at either extreme (2 SD below or above the mean) gained more in achievement, the lower their social-emotional coping skills. This effect is hard to explain. Possible (see Chapter VI) it arose because the teachers of low-achieving classes were less apt to encourage or capitalize on students' shows of initiative; but this does not explain why in high achieving classes, with more effective teachers, the effect of student coping skill was opposite to what one would expect. The specific dynamics of these particular, extreme classes would have to be studied, if an explanation were to be found.

Summary

Those student characteristics which seemed to have the most influence on achievement were self-esteem and coping skills. Both coping and self-esteem showed positive effects, overall, on achievement gain, though with somewhat different patterns. The similarities in effects appear to be somewhat stronger than the differences.

Theoretically, the difference between the coping and the self-esteem concepts used is that coping represents actual classroom behavior, while self-esteem is a subjective perception and evaluation of the self. It is possible for a high coper to have low self-esteem, or for a low coper to have high self-esteem. How would these affect each other?

Blattstein, Blattstein, and Peck (1978), in a preliminary "general" analysis of the same data, found that coping significantly predicted achievement change with self-esteem levels controlled, but that self-esteem levels did not significantly predict achievement change with coping controlled. They postulated that self-esteem affects achievement change through the medium of coping behavior. Yet, one may also use these analyses as evidence that self-esteem is independently influential, apart from coping. In the first place, they used a Worthy-of-Interpretation (WOI) criterion, by which an effect not only had to be significant, but had to account for at least one percent of the criterion variance. This WOI criterion is applicable for a decision-making study, but may be inappropriate for a heuristic study testing theoretical questions, where only a few analyses are performed to study particular questions. Taking only the $\underline{p}$ value, it turns out that both effects were significant. Coping, controlling for self-esteem, was significant at p .001, and self-esteem, controlling for coping, was significant at p .01. However, the percent of variance accounted for by the coping prediction when self-esteem was partialled was greater (2.14% V) than the percent of variance in achievement accounted for when the effect of coping was partialled (.7% V).

Combining the findings presented in this report and the re-interpretation of the results of the earlier analysis, the most valid interpretation seems to be that achievement gain is largely effected through gains in coping skills, which also increase self-esteem. The total set of findings suggests that self-esteem may work through a different mechanism than coping skill to affect achievement. The results provide empirical support for the assumption that coping skill and self-esteem are distinct, separate phenomena. In the classrooms studied here, good coping skills were more likely to effect a positive change in achievement that was self-esteem, considered along.

Another important factor which consistently influenced gain in achievement was the interaction effects with initial achievement. Initial achievement consistently interacted with other student characteristics such as coping skills, self-esteem, and attitudes, showing a "threshold" effect. The implication of these results is that students and/or classes need to have some minimum amount of academic knowledge and skills before they can learn new skills, and make gains in academic performance. In most cases, without these prerequisite academic skills other student characteristics, such as having as positive attitude and self-esteem, or effective coping skills, were not enough to make a difference in gain in academic achievement. This finding has important implications for teachers. It appears that a program designed to assess and teach students prerequisite academic skills is needed at the beginning of the year. It therefore appears to be very beneficial for teachers to spend their time teaching these prerequisite skills to those students who have not yet mastered them, if they are to gain academically over the year.

TABLE ACH 1

THE RELATIONSHIP BETWEEN INITIAL ACHIEVEMENT AND PUPIL CHARACTERISTICS

	Austin 1	Austin 2	Kentucky 1
Academic Coping: Peer Rating	.41[1,2]	.36	.42
Academic Coping: Self Rating	.30	.14	.20
General Coping: Self Report	.07	.13	NS
Attitude - General	.07	NS	NS
Attitude - School	.08	.18	.12
Self-Esteem	.26	.28	.21
Achievement:[3] Pre-Post r	B .81 W .74	B .95 W .87	B N/A W .65

[1] All correlation coefficients presented are significant at $p < .01$.

[2] All correlation coefficients are general (Individual scores for all classes pooled), except for Achievement.

[3] B = Between-class correlation (class means).
W = Within-class correlation (individual scores).

TABLE ACH 2

THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACHIEVEMENT

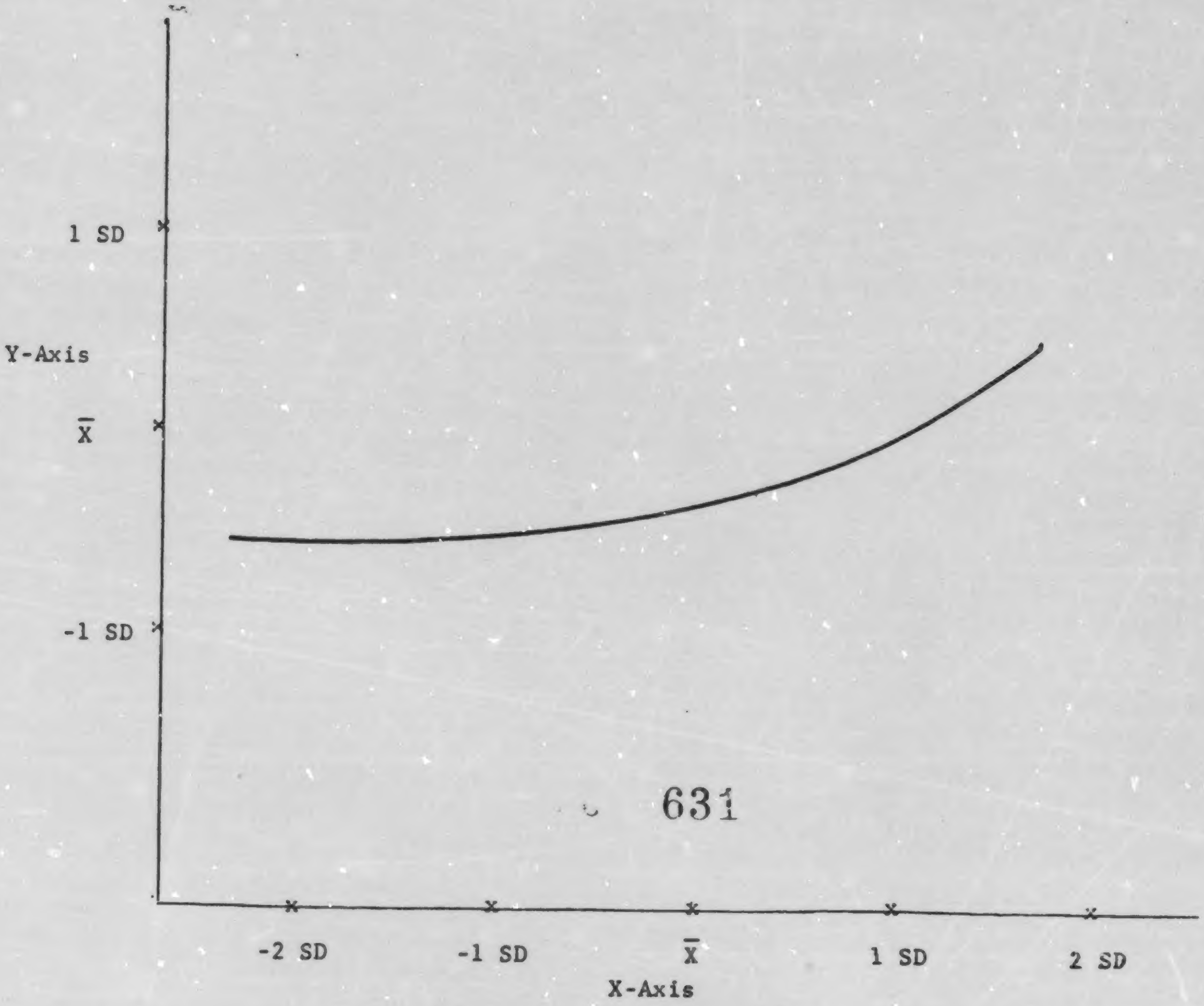
	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Academic Coping: Peer Rating (BRS-OR)	within L	.001	1.30	+	within L	.001	.42	+	within L	.0001	6.17	+
	xp	.001	.96									
	p2	.001	.35									
	between xp2	.05	2.73									
Academic Coping: Self-rating (BRS-SR)									within L	.0004	1.10	+
General Coping: Self-rating (SCC-C)	within xp	.005	.28									
	between p2	.02	3.55			.04	1.03					
Attitude: School					within L	.01	.19	+				
Attitude: General	between xp	.001	5.66									
Self-esteem	within xp	.01	.23						within L	.0001	1.36	+
	within L	.001	.39	+								

TABLE ACH 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ACHIEVEMENT

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task	within xp	.05	.45		between x2p2	.003	2.49		within xp2	.0009	2.47	
Academic Coping	within L	.001	1.63	+					within L	.0001	5.79	+
	p2	.01	.61									
	xp	.04	.42									
	between L	.04	3.04	+								
Soc.-Emo. Coping	within L	.001	1.81	+	within p2	.001	.87		within L+	.0001	3.37	+
					between x2p	.03	1.52					
Cor-Pupil												

GRAPH ACH 1

Y-Axis (Criterion) ACH (CT) Post. Pre.
X-Axis (Predictor) BRS-OR (cop)
Grouped on
Effect Pupil-Q
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled Yes

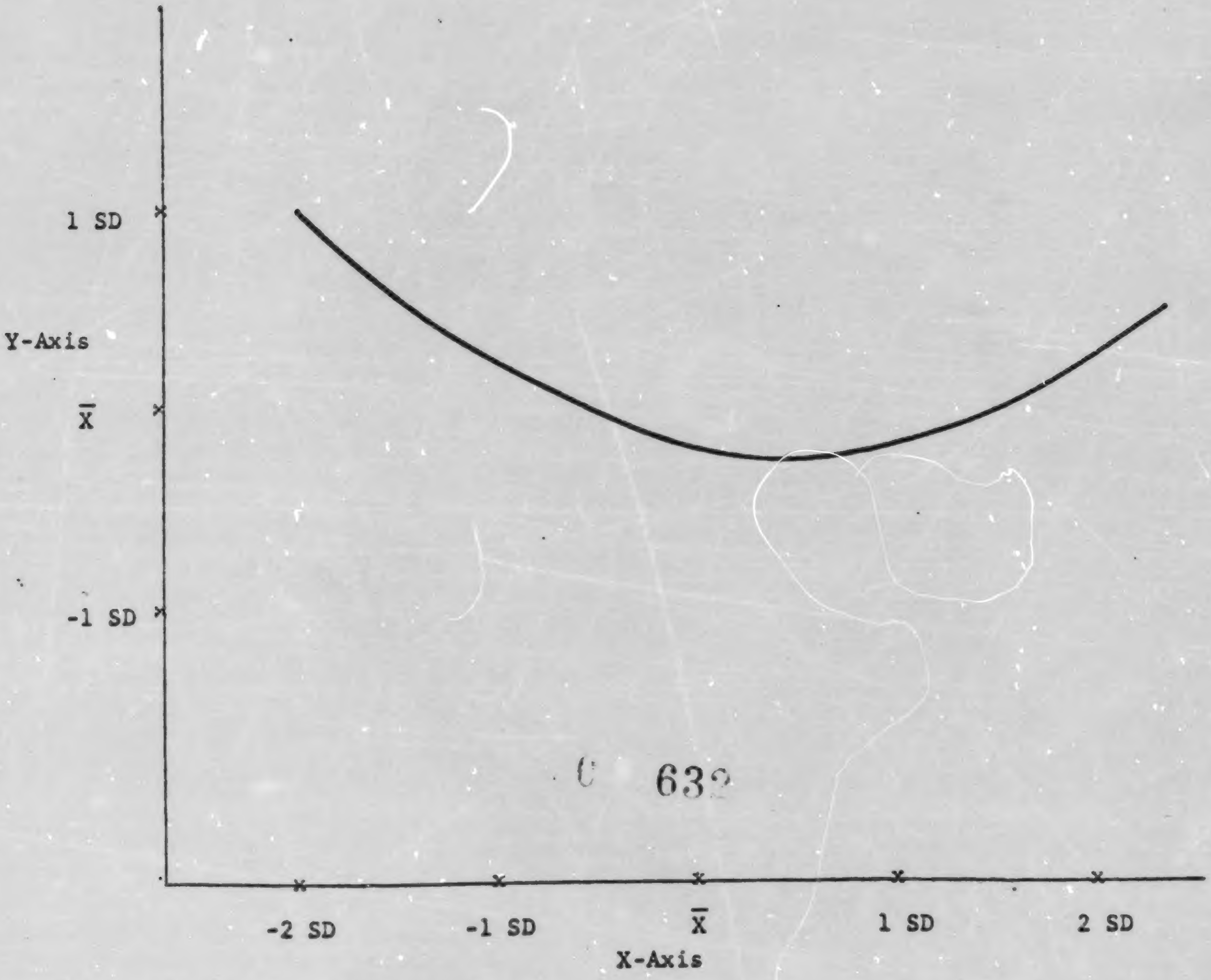


631

GRAPH ACH 2

Y-Axis (Criterion) ACH (CT) Post. Pre.
X-Axis (Predictor) SSC-Cop
Grouped on

Effect Pupil-Q
Year and site Austin 1
Unit of Analysis Between-Class
Pretest controlled Yes

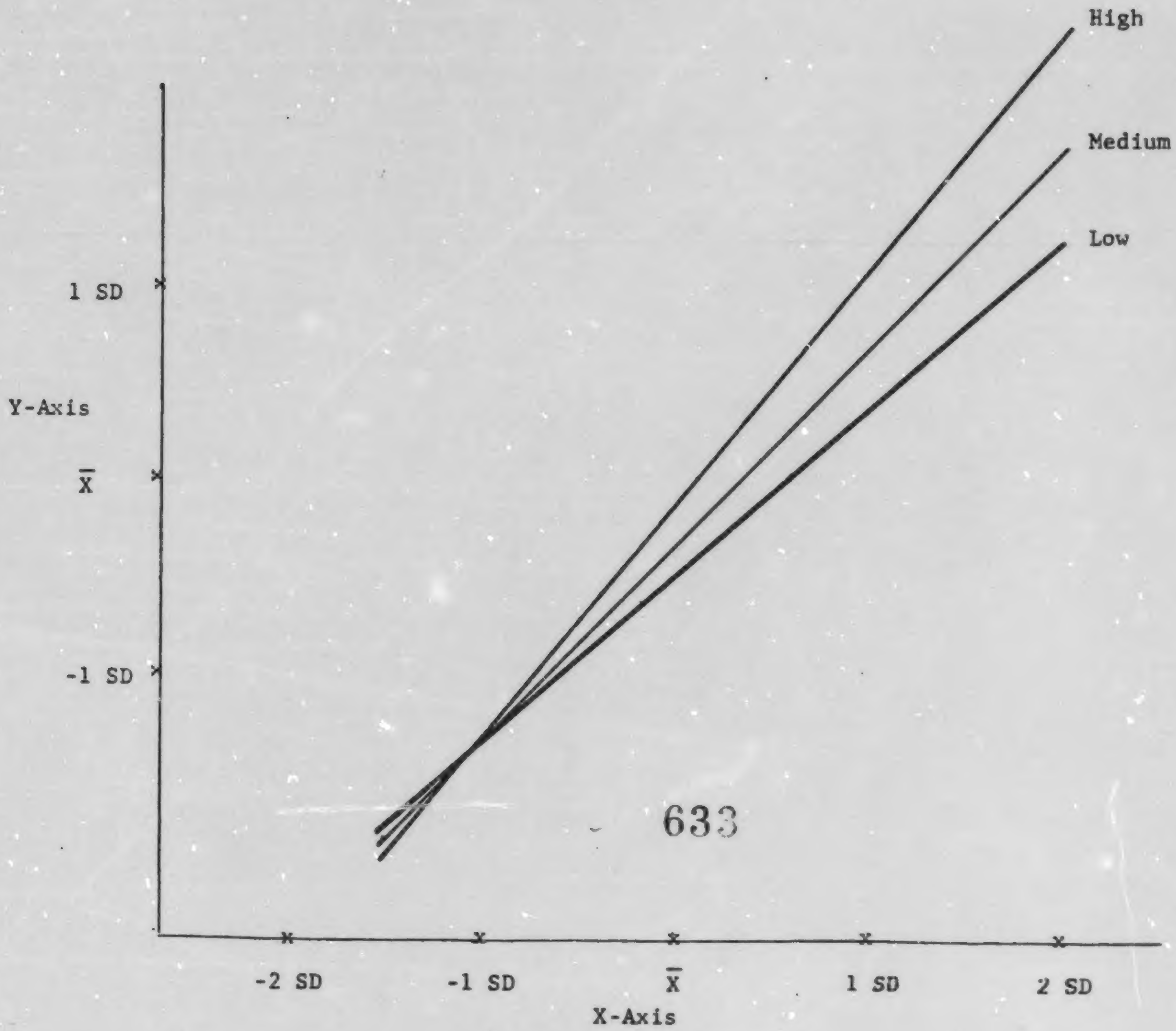


632

GRAPH ACH 3

Y-Axis (Criterion) ACH (CT) Post
X-Axis (Predictor) ACH (CT) Pre
Grouped on BRS-OR (cop)

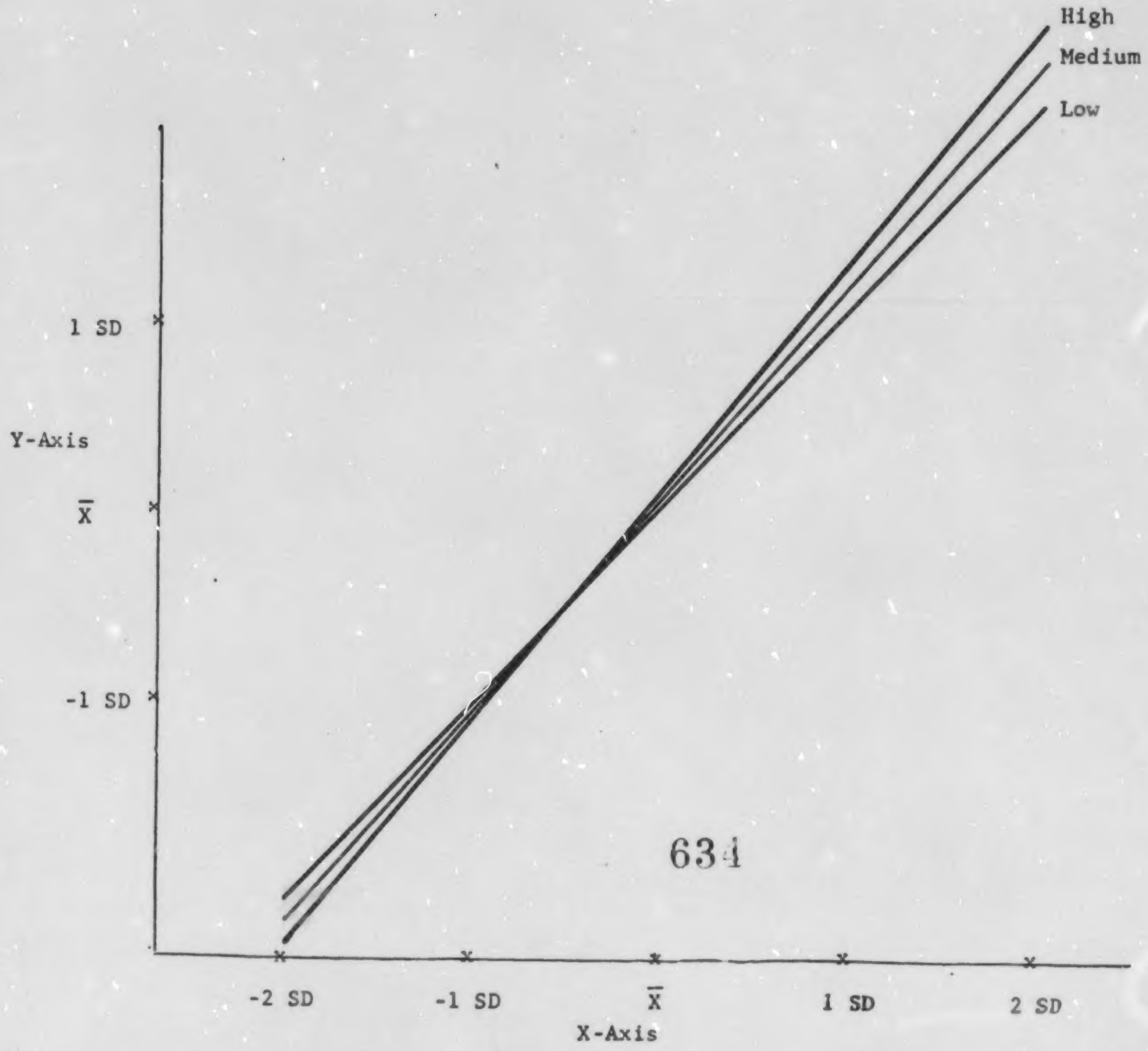
Effect Pre-L x Pupil-L
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled yes



GRAPH ACH 4

Y-Axis (Criterion) ACH (CT) Post
X-Axis (Predictor) ACH (CT) Pre
Grouped on SSC-Cop

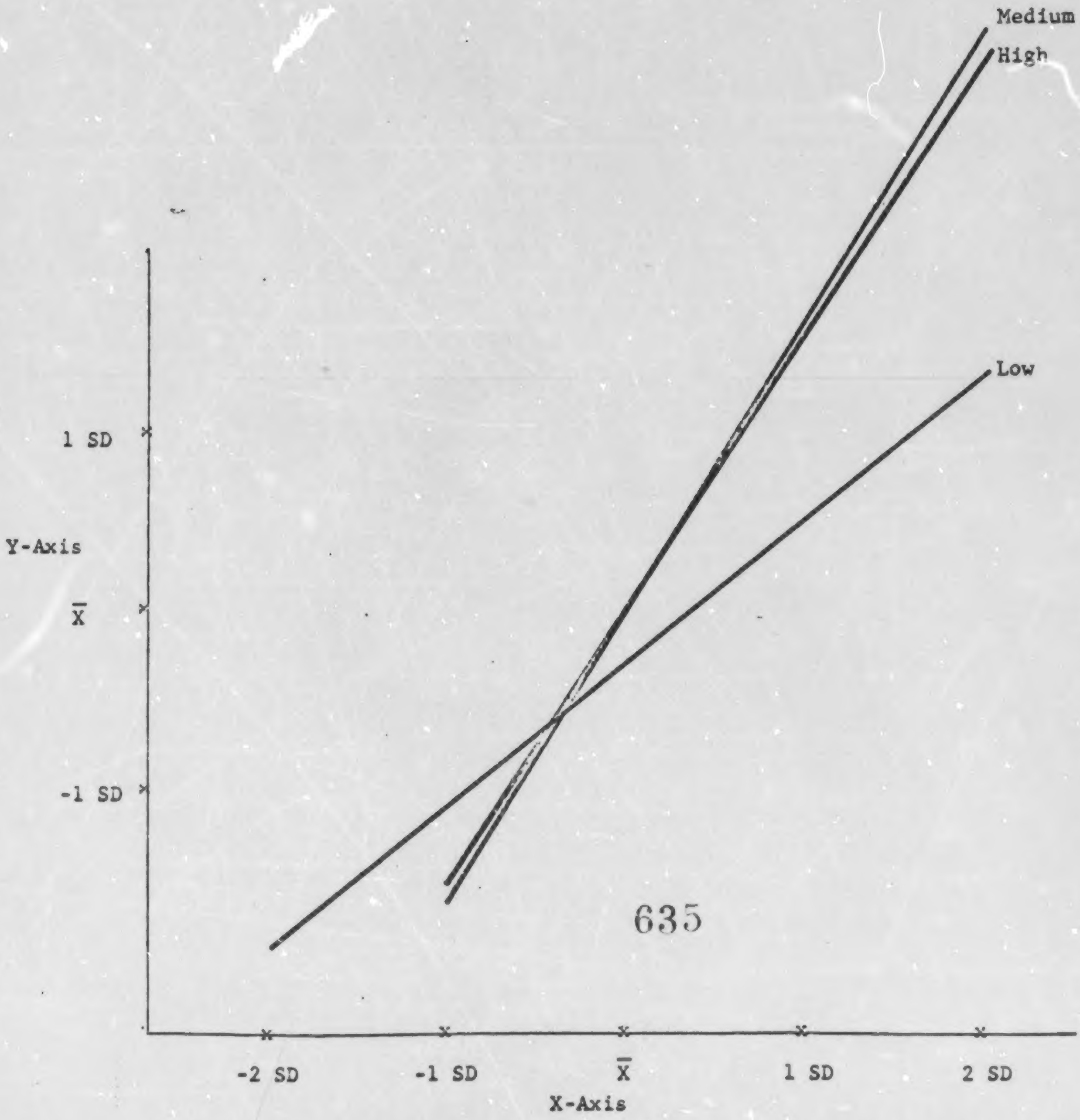
Effect Pre-L x Pupil-L
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled yes



GRAPH ACH 5

Y-Axis (Criterion) ACH (CT) Post
X-Axis (Predictor) ACH (CT) Pre
Grouped on BRS-OR (Cop)

Effect Pre-L x Pupil-Q
Year and site Austin 1
Unit of Analysis Between-Class
Pretest controlled yes



635

GRAPH ACH 6

Y-Axis (Criterion) ACH (CT) Post

X-Axis (Predictor) ACH (CT) Pre

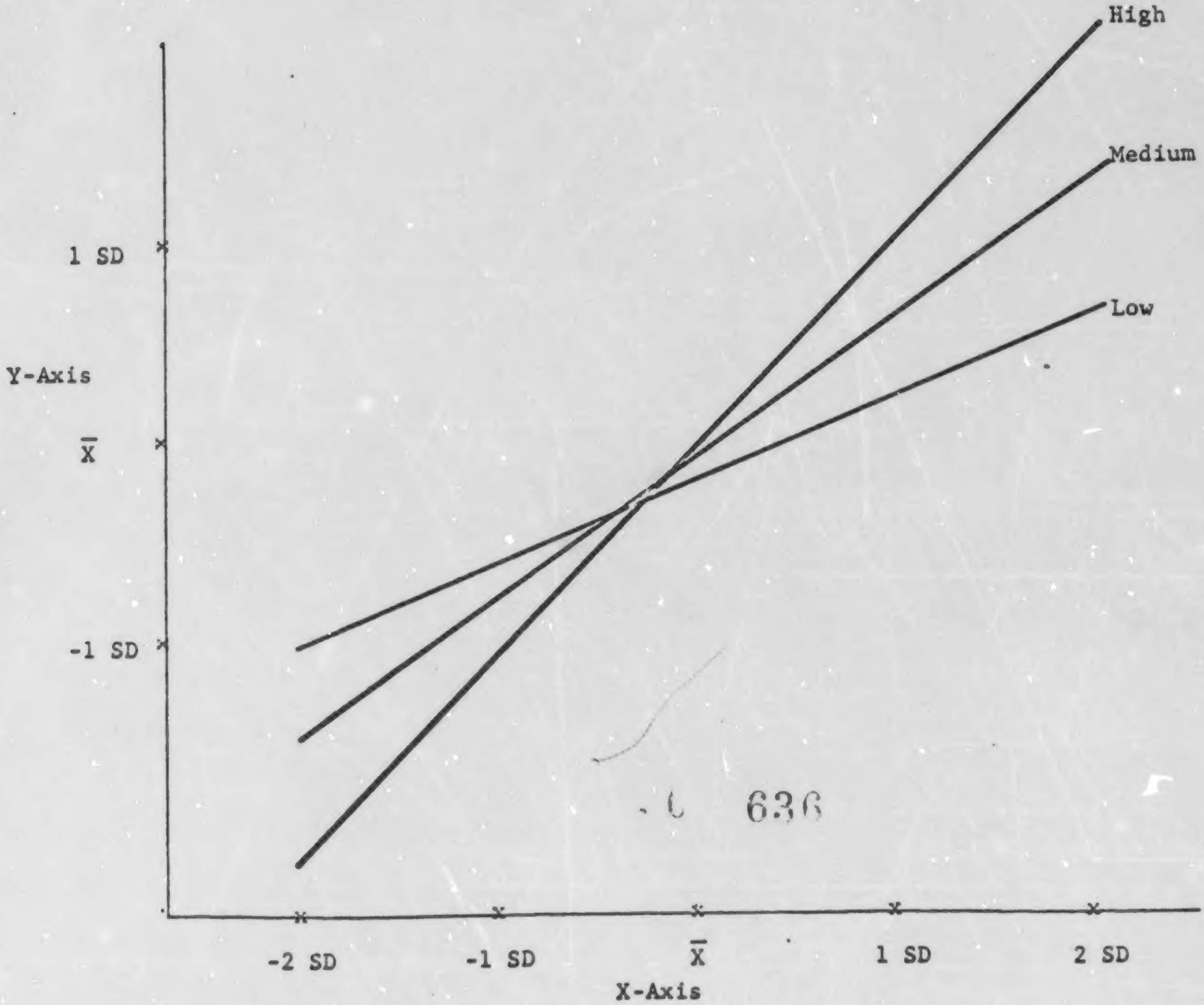
Grouped on SSC-Att

Effect Pre-L x Pupil-L

Year and site Austin 1

Unit of Analysis Between-Class

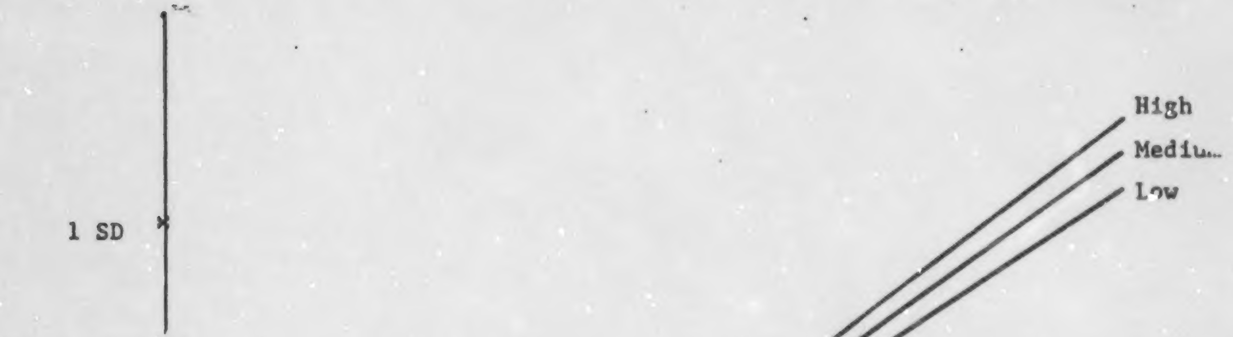
Pretest controlled yes



GRAPH ACH 7

Y-Axis (Criterion) ACH (CT) Post
X-Axis (Predictor) ACH (CT) Pre
Grouped on Self-est (P-H)

Effect Pre-L x Pupil-L
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled yes



637

GRAPH ACH 8

Y-Axis (Criterion) ACH (CT) Post

X-Axis (Predictor) ACH (CT) Pre

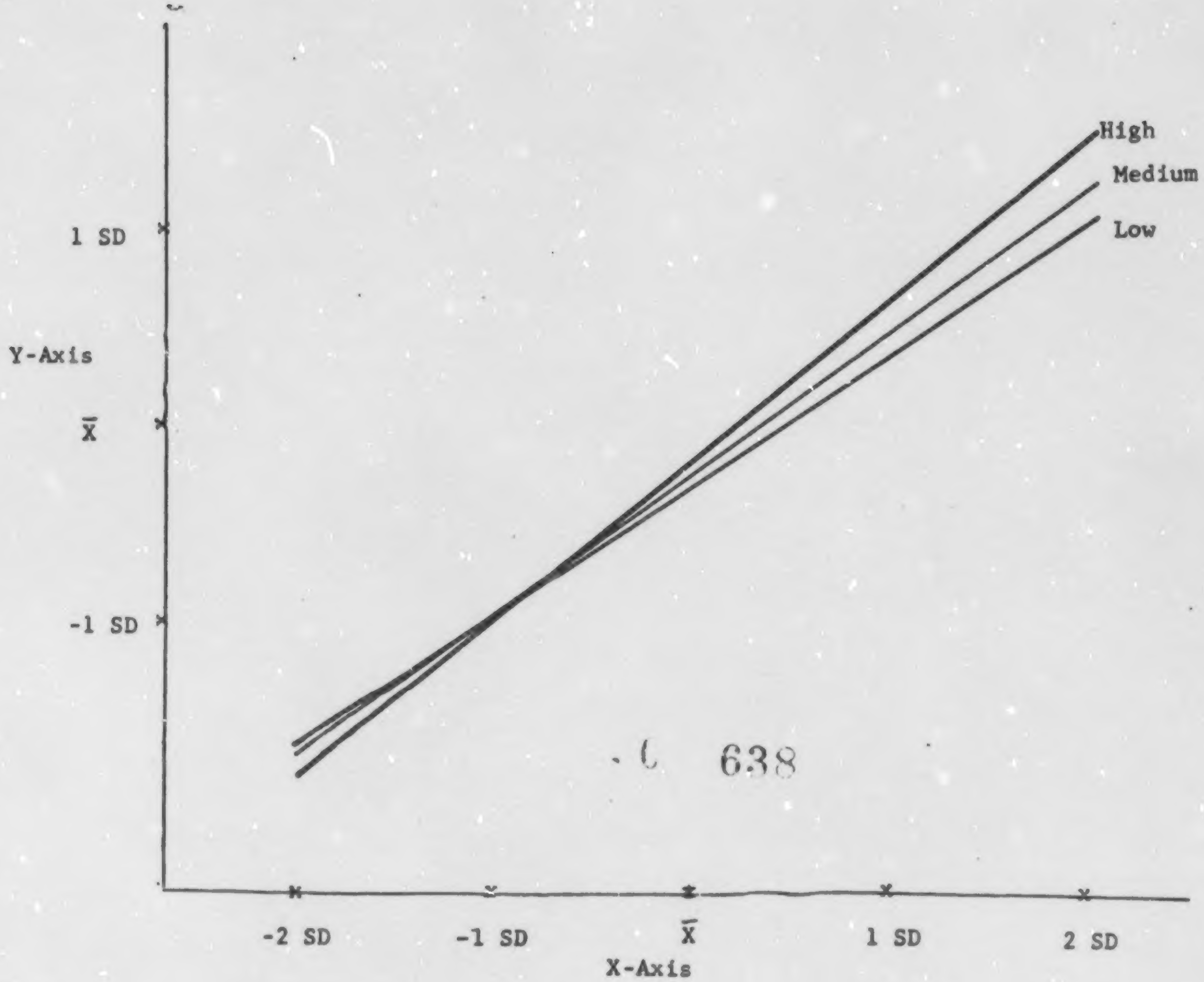
Grouped on TOT

Effect Pre-L x Pupil-L

Year and site Austin I

Unit of Analysis Within-Class

Pretest controlled yes

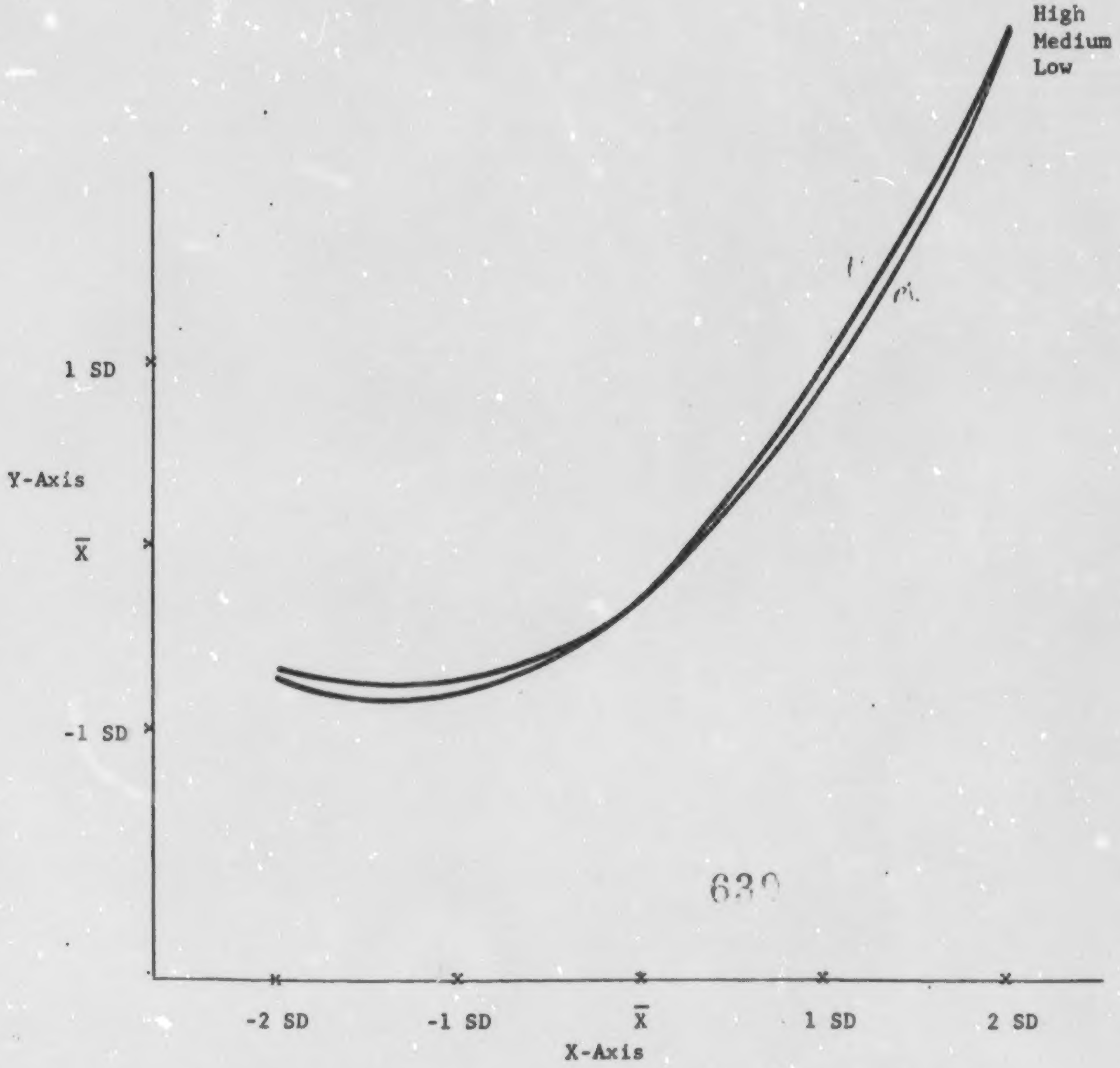


638

GRAPH ACH 9

Y-Axis (Criterion) ACH (GMG) Post
X-Axis (Predictor) ACH (GMG) Pre
Grouped on TOT

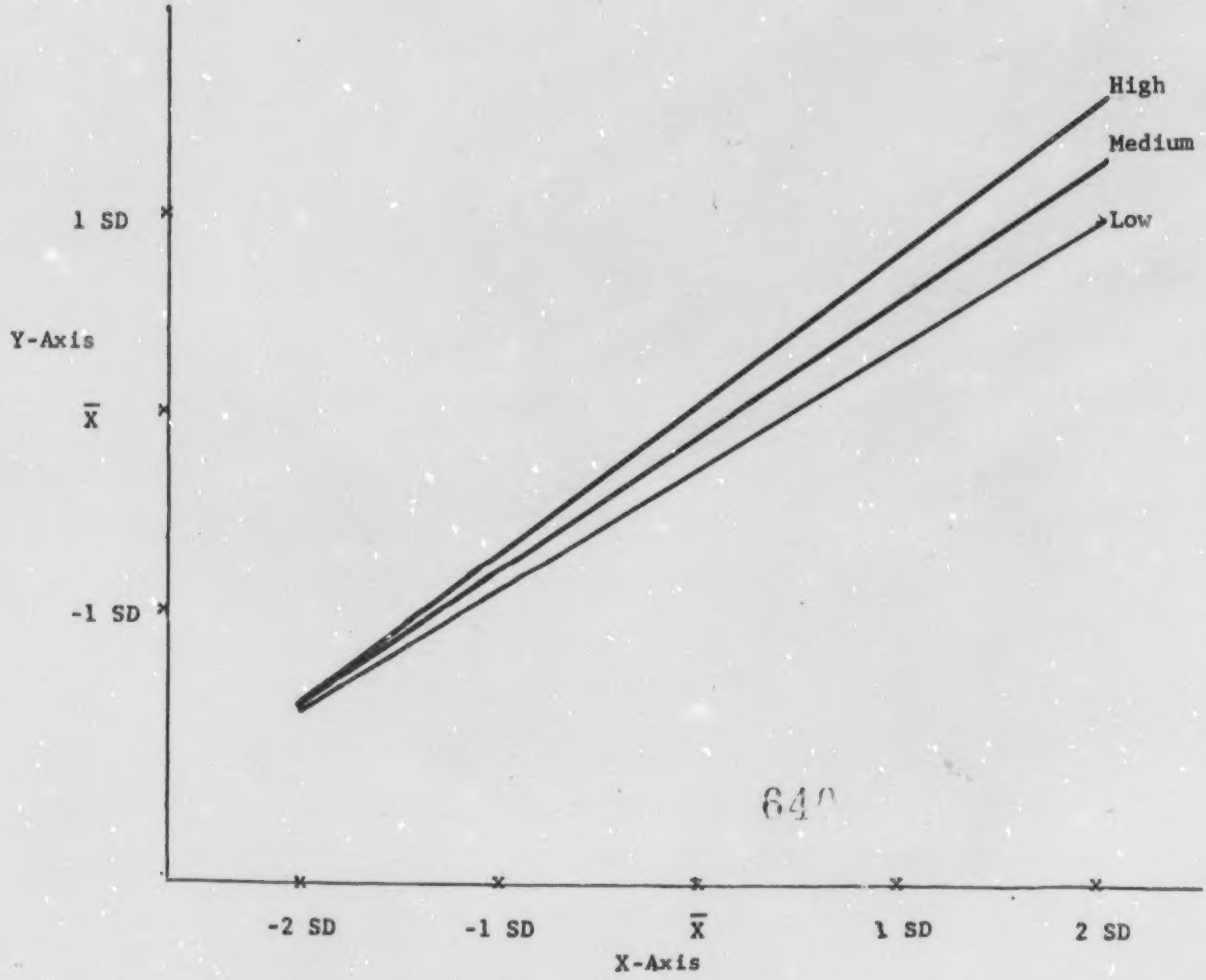
Effect Pre-Q x Pupil-Q
Year and site Austin 2
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH ACH 10

Y-Axis (Criterion) ACH (CT) Post
X-Axis (Predictor) ACH (CT) Pre
Grouped on Acad Cop

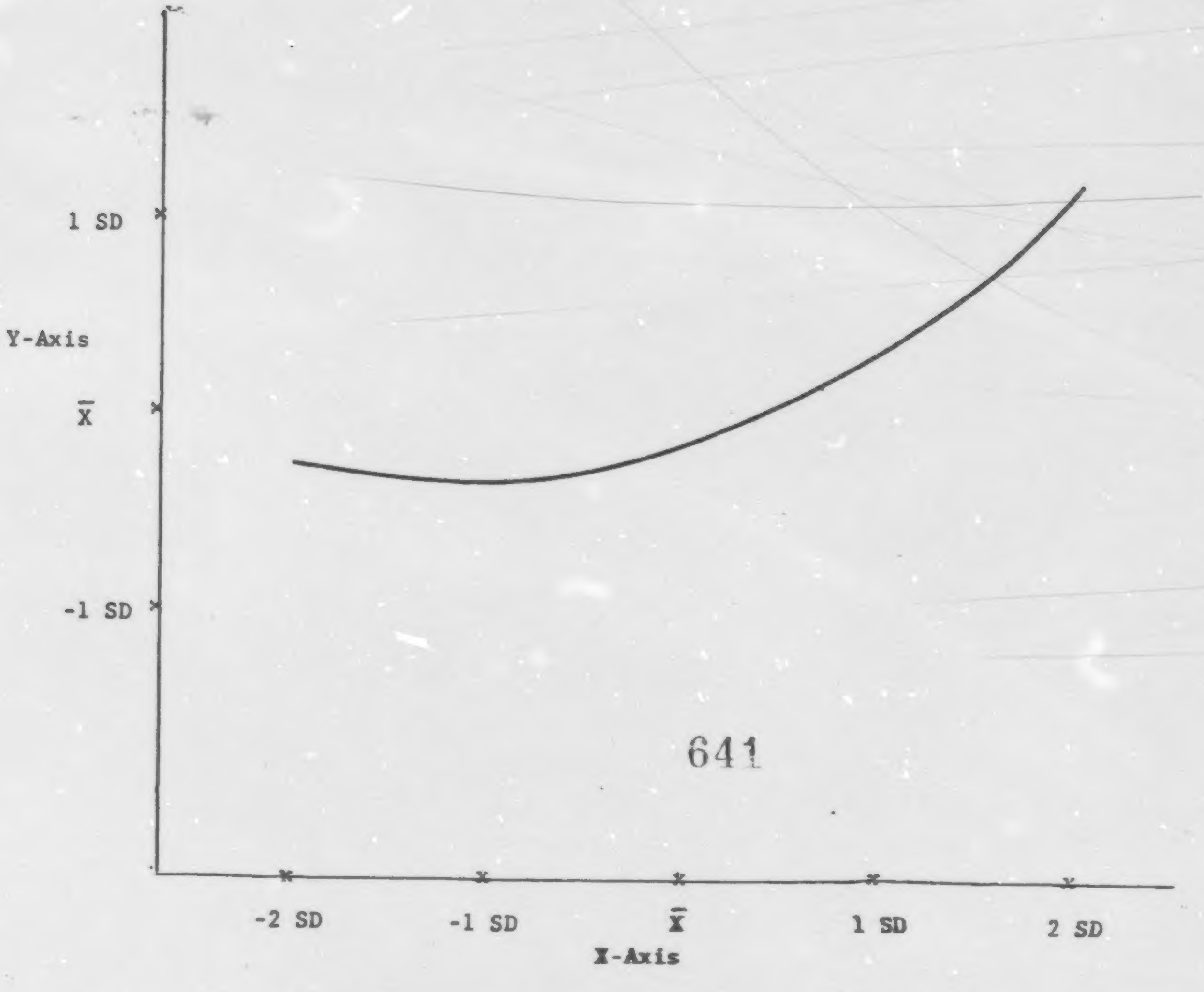
Effect Pre-L x Pupil-L
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled yes



640

GRAPH ACH 11

Y-Axis (Criterion) ACH (CT) Post. Pre.
X-Axis (Predictor) Acad Cop
Grouped on
Effect Pupil-Q
Year and site Austin 1
Unit of Analysis Within-Class
Pretest controlled yes

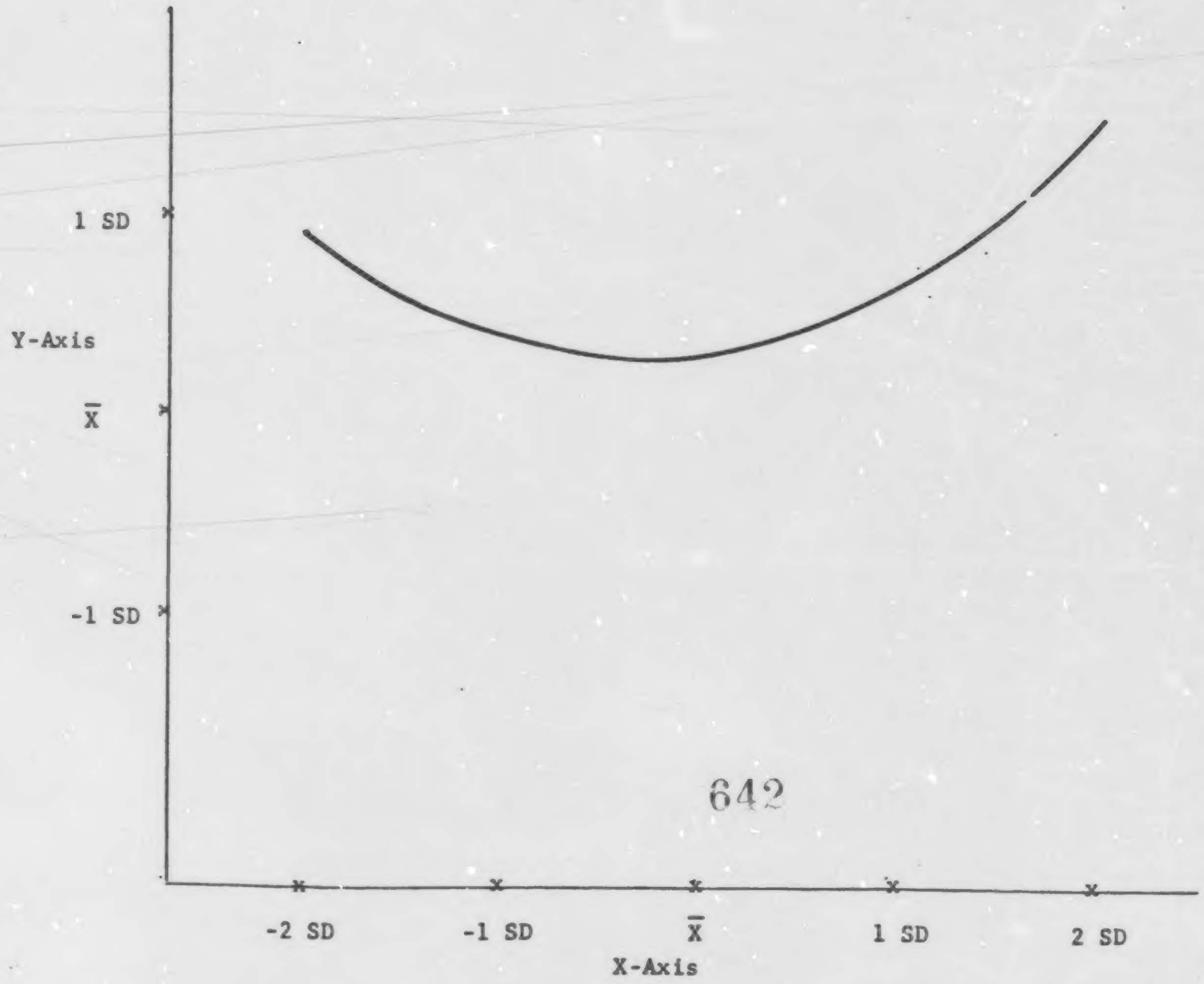


641

GRAPH ACH 12

Y-Axis (Criterion) ACH (GMG) Post. Pre.
X-Axis (Predictor) SOC-EMO-cop
Grouped on

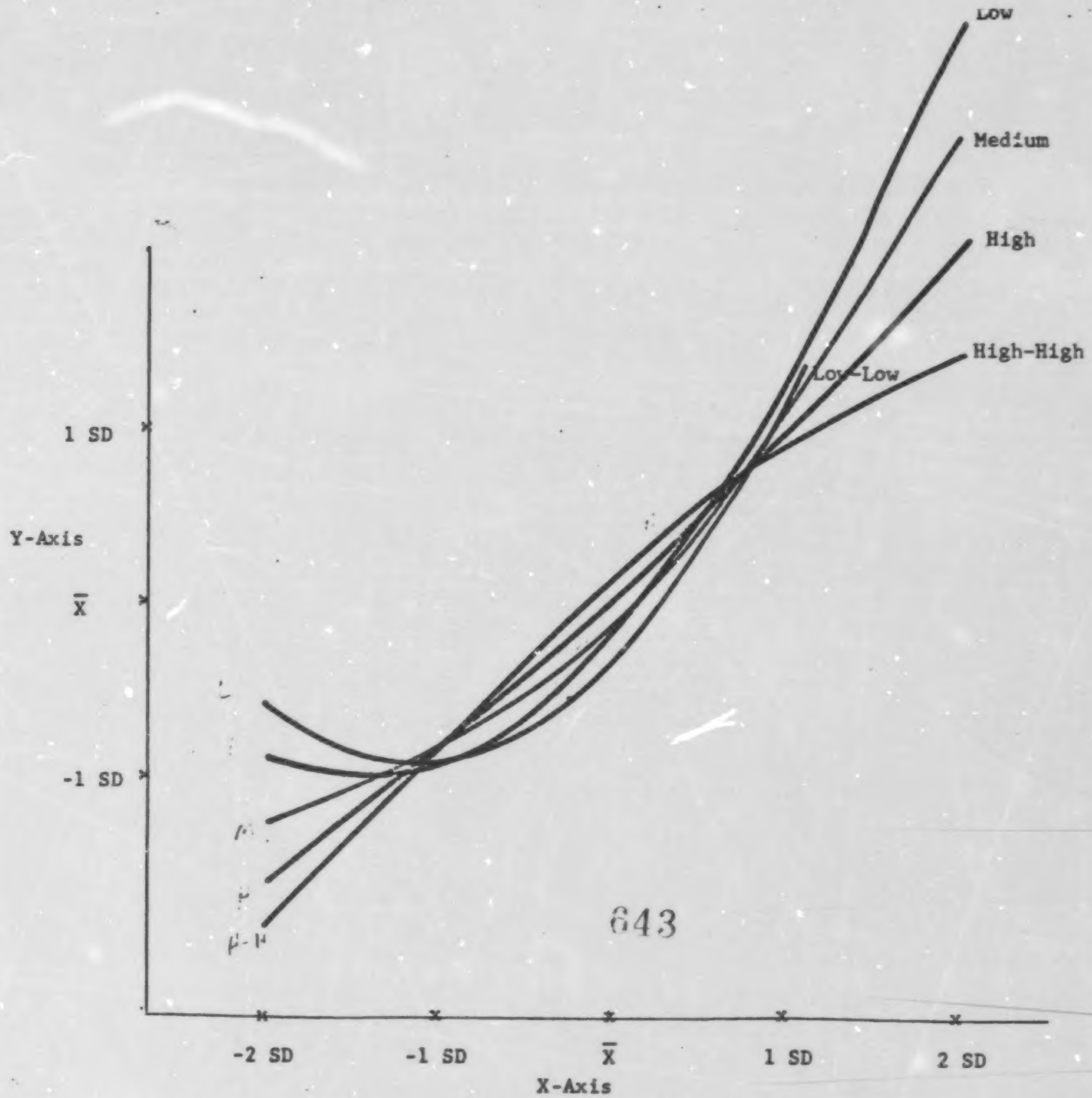
Effect Pupil-Q
Year and site Austin 2
Unit of Analysis Within-class
Pretest controlled yes



GRAPH ACH 13

Y-Axis (Criterion) ACH (GMG) Post
X-Axis (Predictor) ACH (GMG) Pre
Grouped on SOC-emo-cop

Effect Pre-Q x Pupil-L
Year and site Austin 2
Unit of Analysis Between-Class
Pretest controlled yes



Learning Outcome: Peer-Rated Measure of Academic Coping Behavior as Measured by the Behavior Rating Scale - Peer-Rated (BRS-OR)

The Relationship Between Initial Peer-Rated Coping Skill and Other Initial Characteristics

Each student's classroom coping behavior was rated by a random sample of nine classmates. The relationships between this measure and other student characteristics at the beginning of the year are presented in Table P-R A COP 1.

Initial peer-rated academic coping (BRS-OR) was substantially correlated with several other student characteristics. The correlations in Austin I were: .41 with academic achievement, .42 with self-rated academic coping, .12 with self-report general coping, .15 with attitude about life, .20 with attitude about school, and .25 with self-esteem. The correlation coefficients for Austin II were : .36 with achievement, .24 with self-rated academic coping, .24 with self-reported general coping, .12 with attitude towards life, .21 with attitude towards school, and .23 with self-esteem. In Kentucky, the correlation coefficients were: .42 with achievement, .32 with self-rated academic coping, .13 with attitude towards life, .20 with attitude towards school, and .28 with self-esteem.

In all three samples, the variables which correlated the highest with peer-rated academic coping were academic achievement, self-rated academic coping, and self esteem. Since academic achievement and attitudes have the strongest relationship to the way a student's academic coping ability is perceived by classmates, it appears that the peer judgements have substantial validity. The fact that the students with high achievement also tended to have high self-ratings in coping and high self-esteem suggests that taking student bodies as a whole, their self-perceptions also possess some validity, despite know exceptions to some individual cases.

The Effects of Student Characteristics on Regressed Change in Peer-Rated Academic Coping

Peer-rated academic coping (BRS-OR) was not used as a criterion variable in Austin I and Kentucky; therefore, the results presented in Table P-R A COP 2 and in this text are limited to Austin II.

The Effects of Achievement on Peer-Rated Academic Coping When looking at the differences between class means on the peer-ratings of classroom coping, initial achievement predicted positive changes in ratings over the year (p .05, 4.25% V). The higher the classes' initial achievement levels, the more they gained in peer-rated coping scores. Furthermore, within classrooms there was also a positive linear relationship (p .0001, 2.66% V) between these two variables. More capable students gained more in reputation than less capable ones; the difference in their coping ratings increased over the year.

The differential effect of achievement ratings within the classroom was qualified by the pre-test level, as shown in a pre-test (coping) by achievement interaction (p .04, .22% V). (See Graph P-R A COP 1.) In general, the classroom coping pre-test was positively correlated with the post-test. However, students with high initial reading achievement tended to get slightly higher classroom coping ratings at all levels of the pre-test than medium or low achieving students. High initial achievers got even better end-of-year ratings than medium achievers, and medium achievers got even better ratings than low achievers, than had been true at the beginning of the year. High achievement was not the only criterion peers used to rate classroom coping, but it strongly influenced these ratings in a positive direction.

The Effects of Other Coping Measures on Peer-Rated Academic Coping There was a positive linear relationship between gain in peer-rated coping, self-rated academic coping, and self-report general coping (p .001, .79% V). These within-class results are presented in Table P-R A COP 3. The higher the initial level of self-perceived coping ability, the higher the peer-rated academic coping became by the end of the year. The within-class analysis also yielded a significant curvilinear relationship (p [illegible]03, .26% V) between self-rated academic coping and peer-rated academic coping. This effect, illustrated in Graph P-R A COP 2, indicates a slight tendency for students' whose self-rated academic coping was below the mean to gain in peer-rated coping, the higher their initial self-rating. Conversely, students with above average self-ratings showed a slight decrease in peer-rated coping skill. Overall, though, students with a positive initial view of themselves became seen as even better copers than less confident students, as the year went on.

The Effects of Self-Esteem and Other Attitude Measures The results of the within-class analysis yielded a positive linear relationship between the criterion variables, peer-rated academic coping and self-esteem (p .001, .65% V), general attitude toward life (p .001, .54% V), and attitude toward school (p .001, .76% V). The higher these students attitudes, the greater was their gain in peer-rated academic coping. There was also a small interaction effect between attitude toward school and the pre-test (p .03, .26% V) in the prediction of regressed gain in peer-rated academic coping. These results are illustrated in Graph P-R A COP 3. The graph indicates that students who were rated high by their peers initially, gained the most when their attitude towards school was the most positive, and the least when it was least positive. Conversely, those students rated very low by their peers in academic coping (-2 SD below the mean) at the beginning of the year did not gain in peer appraisal regardless of how positive their attitude towards school may have been.

The Effects of Time on Task In a special study of a sample of this student population, observations of the time the class and individual students spent on school work were predictive of peer-ratings of classroom coping. Classes which spent more time than average on-task tended to gain higher peer ratings of classroom coping over the year. (p .00, 4.55% V). Within these classes, students with high ratings of time spent on task tended to gain more in their peer-rated coping skill (p .00, 1.69% V).

Time-on-task also had the effect (see Graph P-R A COP 4) of increasing the difference in perceived coping skill between students. Students who were rated below-average copers to start with improved most if they displayed high time-on-task behavior during the year; less, if they showed average time-on-task; and least, if they showed low time-on-task. However, this difference was even greater among students who had high peer ratings at the start. Among these, students who showed low time-on-task had much lower coping scores by the end of the year, those showing average time-on-task were rated somewhat better; and those with high time-on-task were rated best, as the end. It would seem that average and below-average copers need to stay on-task most of the time if they are not to lose ground further in their coping skills.

The Effects of Observed Coping Behavior Teacher ratings of the special-study students' academic coping skill substantially predicted gain in peer-rated coping skill (p .00, 15.4%). So did teacher-rated social-emotional coping skill (p .00, 16.4% V). Teacher and classmated seem to have agreed in their perception of individual students' coping skills. The relationship of teacher-rated academic coping to gain in peer-rated coping differed according to the level of a class' initial peer rating (see Graph P-R A COP 5). In the middle range of initial coping (peer-rated), the higher the teacher rated the students in a class, the more those students gained in the eyes of their classmates. For those few students who were initially rated extremely high or low by peers, however, there was an increase effect. The ones the teacher rated low gained more than those the teacher rated average or high. This curious inversion was produced by a very small number of cases. For most students, teacher-rated coping corresponded to gain in peer-rated coping.

TABLE P-RA COP 1

THE RELATIONSHIP BETWEEN INITIAL ACADEMIC COPING: PEER RATINGS AND PUPIL CHARACTERISTICS

	Austin I	Austin II	Kentucky
Achievement	.41	.36	.42
Academic Coping: Self Rating	.42	.24	.32
General Coping: Self Report	.12	.24	NS
Attitude - General	.15	.12	.13
Attitude - School	.20	.21	.20
Self-Esteem	.25	.23	.28

TABLE P-RA COP 2

THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: PEER RATING

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement					within							
					L	.001	2.66	+				
					x p	.04	.22					
					between							
					L	.05	4.25	+				
Academic Coping: Self-Rating		NO DATA			within					NO DATA		
					L	.03	.26	+				
					p2	.03	.26					
General Coping: Self-report					within							
					L	.001	.79	+				
Attitude: School					within							
					L	.001	.76	+				
					Xp	.03	.26					
Attitude: General					within							
					L	.001	.54	+				
Self-esteem					within							
					L	.001	.65	+				

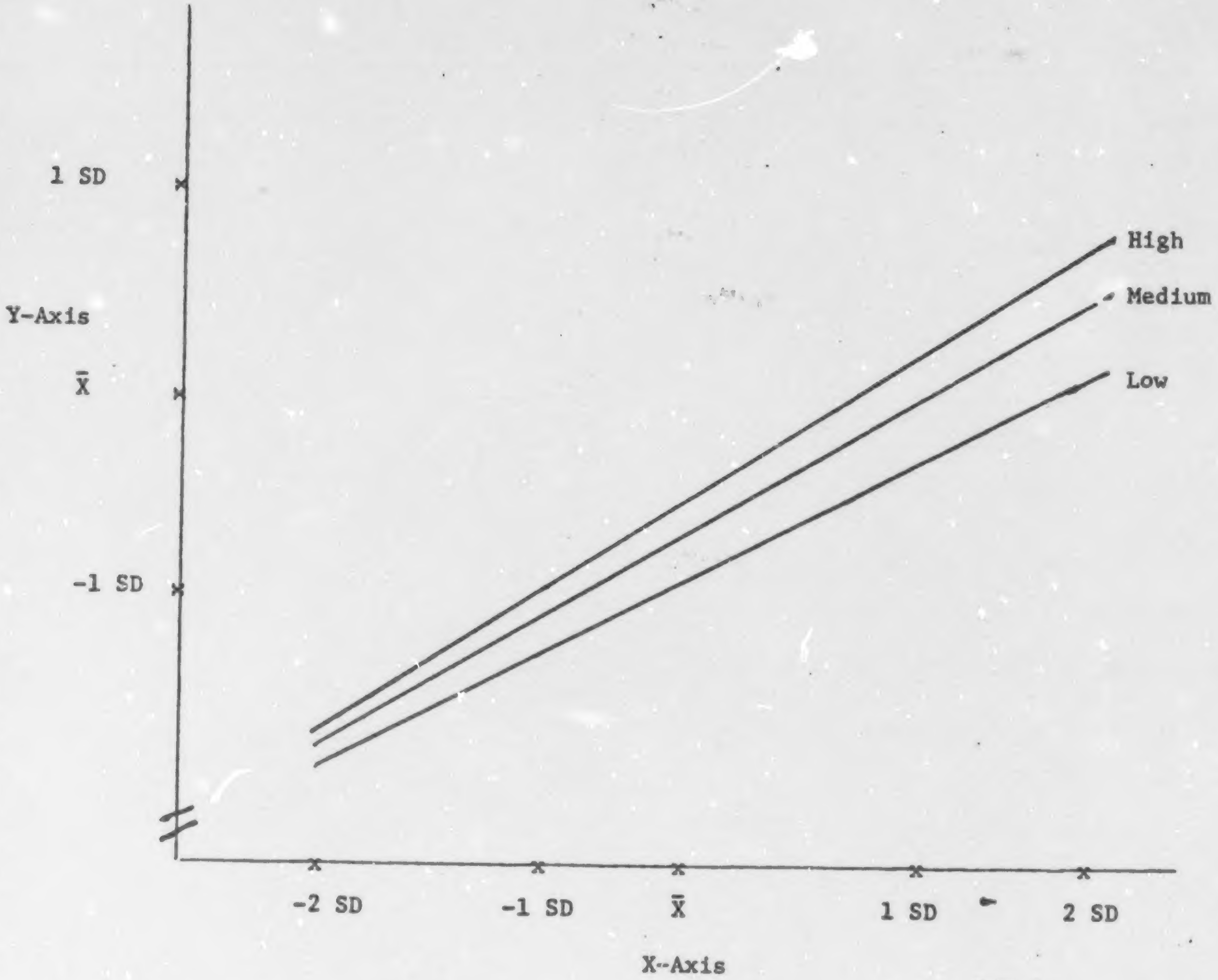
TABLE P-R A COP 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ACADEMIC COPING: PEER RATED

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task		N O			within				N O			
					L	.004	1.69	+				
					xp	.005	1.46					
					between							
					L	.05	4.55	+				
Academic Coping		D A T			within				D A	T		
					L	.0001	15.39	+				
					between							
					x2p	.05	4.28					
Social-Emotional Coping			A		within					A		
					L	.0001	16.39	+				
					between							
					L	.03	5.17	+				

GRAPH P-R A COP 1

Y-Axis (Criterion) BRS-OR (post)
X-Axis (Predictor) BRS-OR (pre)
Grouped on GMG-3

Effect XP
Year and site Austin II
Unit of Analysis Within
Pretest controlled Yes

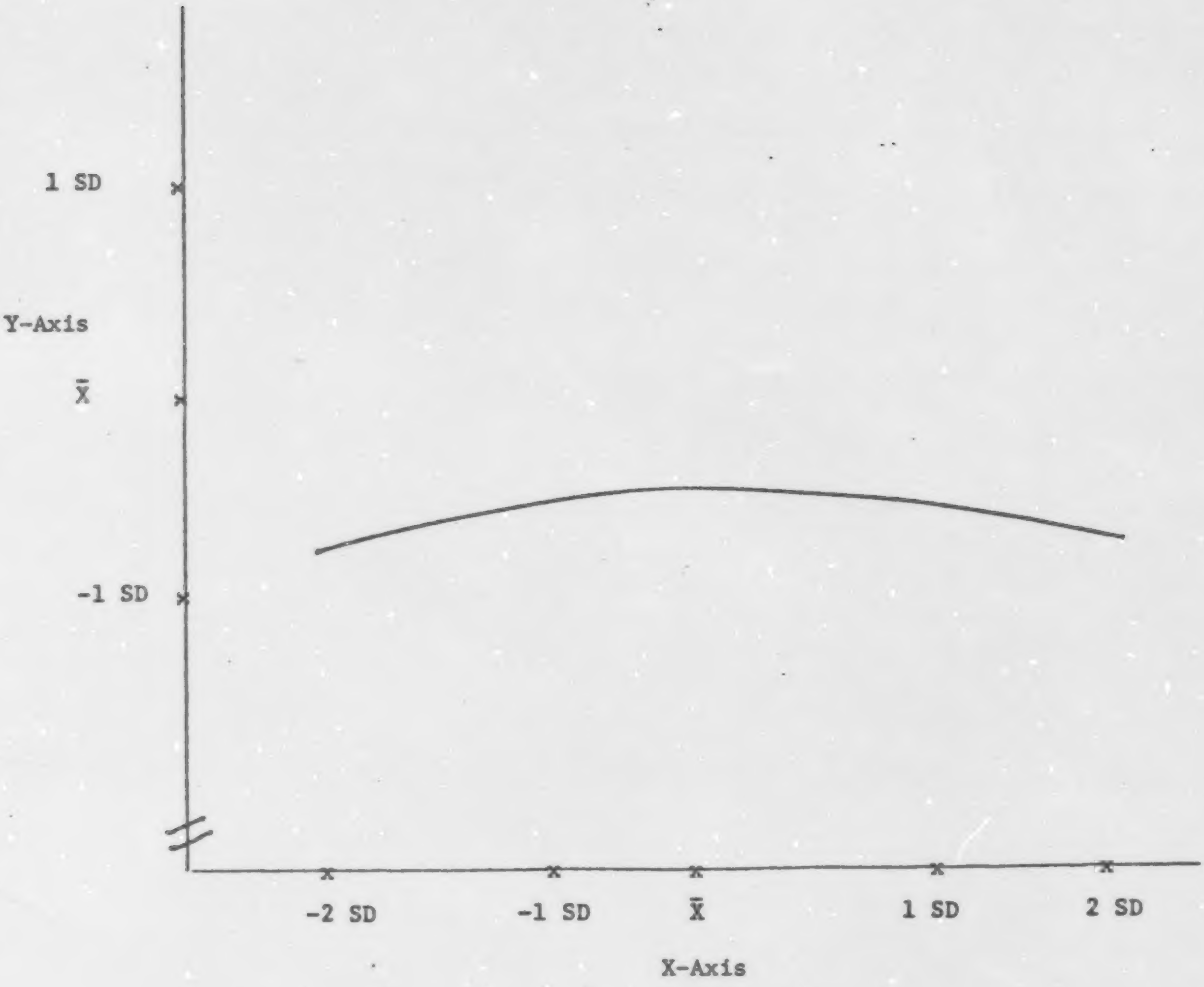


654

GRAPH P-R A COP 2

Y-Axis (Criterion) BRS-OR (Reg. change)
X-Axis (Predictor) BRS-SR (Pre)
Grouped on

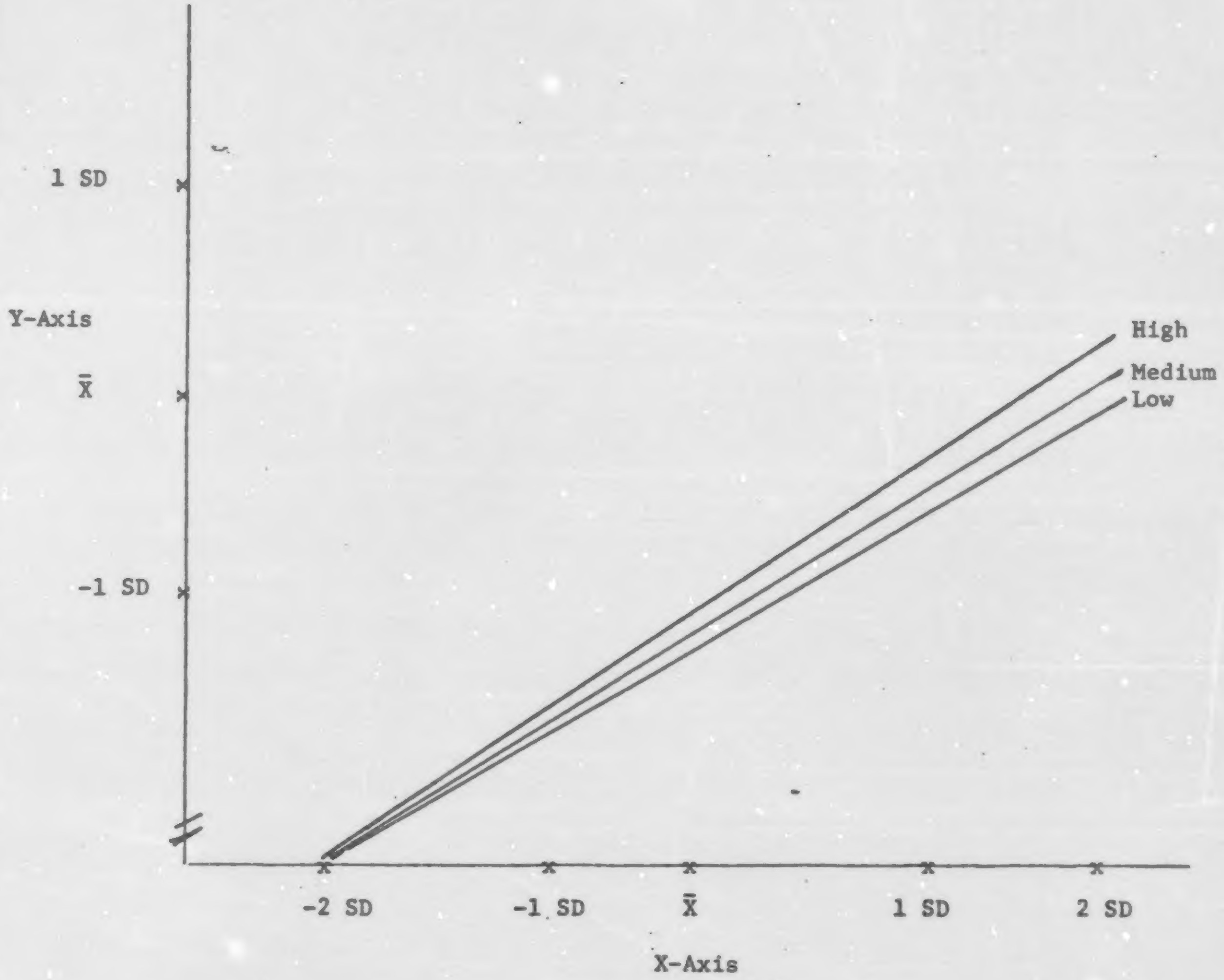
Effect p^2
Year and site Austin II
Unit of Analysis Within
Pretest controlled Yes



655

GRAPH P-R ACAD COP 3

Y-Axis (Criterion)	BRS-OR (post)	Effect	XP
X-Axis (Predictor)	BRS-OR (pre)	Year and site	Austin II
Grouped on	SSI	Unit of Analysis	Within
		Pretest controlled	Yes

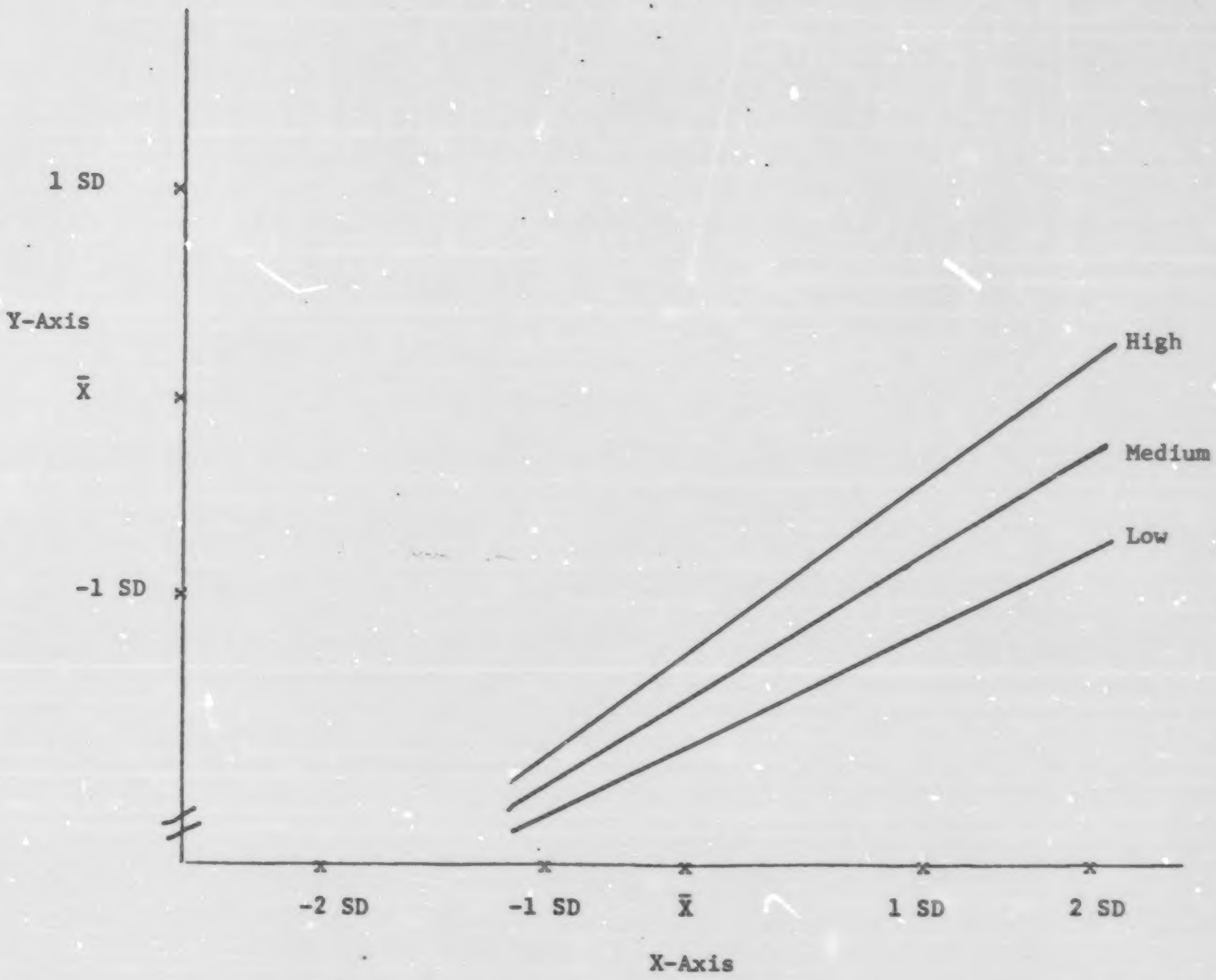


656

GRAPH P-R A COP 4

Y-Axis (Criterion) BRS-OR (post)
X-Axis (Predictor) BRS-OR (pre)
Grouped on TOT

Effect XP
Year and site Austin II
Unit of Analysis Within
Pretest controlled Yes

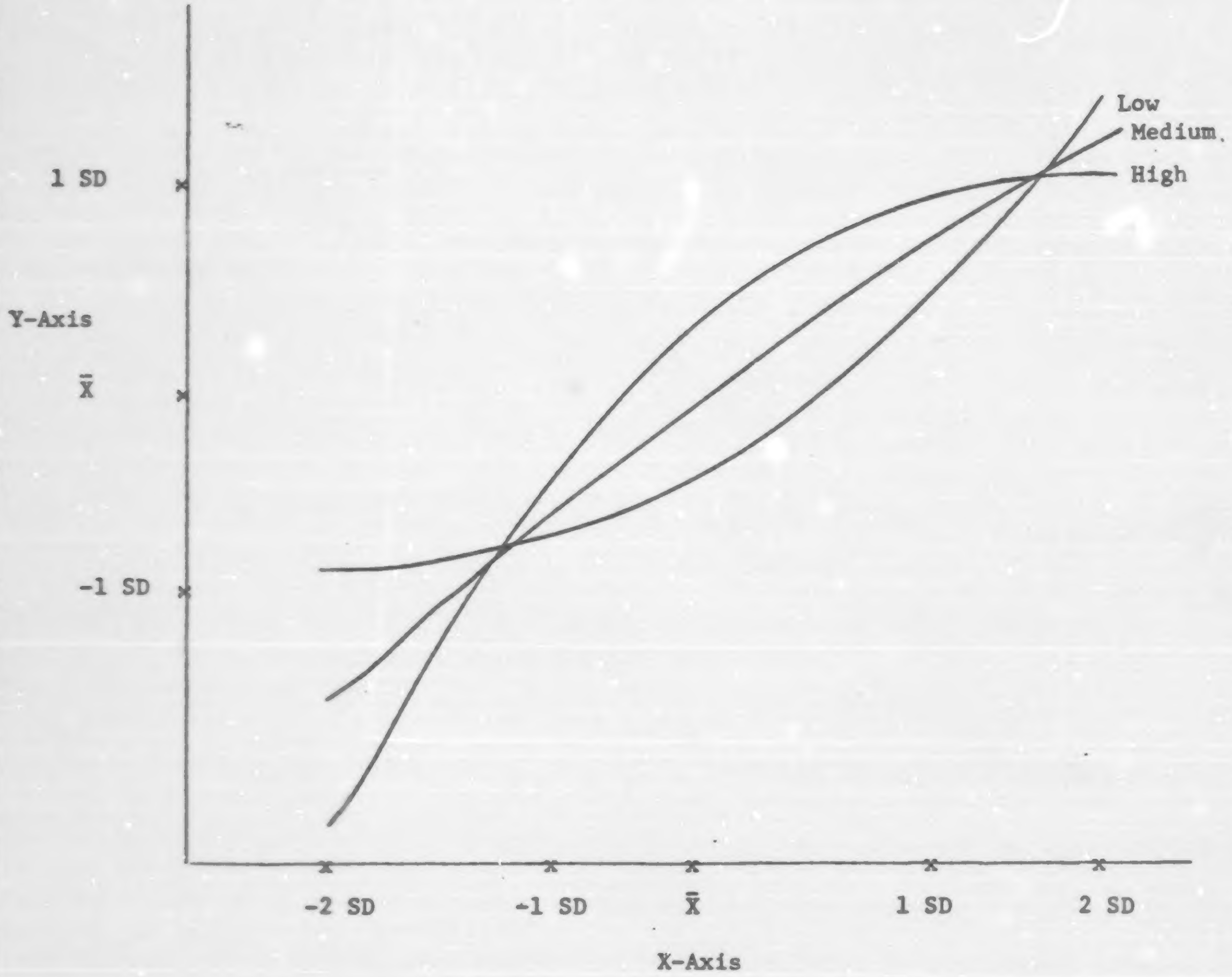


657

GRAPH P-R ACAD COP 5

Y-Axis (Criterion) BRS-OR (Post)
X-Axis (Predictor) BRS-OR
Grouped on Academic Coping

Effect X^2p
Year and site Austin II
Unit of Analysis Between
Pretest controlled Yes



658

Learning Outcome: Self-Rated Academic Coping as Assessed by the Behavior Rating Scale - Self-Rated (BRS-SR)

The Relationship between Initial Peer-Rated Academic Coping and Other Student Characteristics as the Beginning of the Year

The Behavior Rating Scale, was used to describe classroom coping behavior. The rating could be done by peers, a teacher, or the student himself. This report of findings concerns the self-ratings on this instrument.

At the beginning of the year, Austin I students' self-rating of classroom coping correlated with other self-report measures (p .001): .53 with self-esteem (SSD), .34 with self-reported general coping (SSC-C), .33 with attitude toward school, and .34 with attitude in general (SSC-A). This measure also correlated with peer-ratings of classroom coping (BRS-OR, .42) and with academic achievement (CTBS, .30). The results found in Austin II and Kentucky were similar to those in Austin I. These results are presented in Table A COP: SR 1. The general correlation coefficients found in Austin II between self-reported general coping and other measures were: .40 with self-esteem (SSD), .28 with self-reported general coping (SSC-C), .28 with attitude toward school, .21 with attitude in general (SSC-A), .24 with peer-ratings of classroom coping (BRS-OR), and .14 with reading achievement (GMG-3). In Kentucky, the correlation coefficients were .52 with self-esteem, .32 with peer-rated coping, .29 with attitude toward school, .25 with attitude toward life, .24 with general coping, and .20 with achievement.

Students' initial self-esteem correlated substantially with their self-rated coping ability, as it logically should. When the student tended to see herself/himself as coping well with life in general (SSC), the student also tended to see herself/himself as coping well in school. These self-ratings seem to have been moderately valid, judging from their correlation with peer-rated coping skills, and with their achievement test scores.

The Effects of Student Characteristics on Regressed Change in Self-Rated Academic Coping

Self-rated academic coping (BRS-SR) was not used as a criterion variable in Austin I and Kentucky; therefore, the results presented are limited to Austin II. These results are presented in Table A COP: SR 2.

The Effects of Achievement on Self-Rated Academic Coping. A student's initial achievement level predicted gain in self-rated coping skill over the year (within-class, p .00, 1.49% V). The higher the students' beginning achievement level, the more favorably they perceived their coping ability by the end of the year, as compared with their entering perceptions. This type of positive linear relationship was also found in the between-class analyses (p .04, 1.12% V). There was a weaker, curvilinear relationship (p .02, .46% V) between self-rated academic coping and academic achievement. This result is illustrated in Graph A COP: SR 1. Self-rated coping increased as achievement increased for initially low achievers. Among students who achieved better at entry, there was no such effect. This looks like yet another threshold effect; achievement affected self-evaluation of coping where there was most need and room for improved achievement.

The Effects of Other Coping Measures on Self-Rated Academic Coping. Self-rated general coping skill (SSC) influenced change in self-rated academic coping (p .001, 2.00% V). The relationship between these two self-ratings of coping was not, however, as strong as expected (.35). One measure is general, of course, while one is specific to the classroom. Students did evaluate themselves differently as they considered how they handle school tasks, compared with how they handle life in general. Nevertheless if a student had a positive sense of ability to cope on either the general or specific instruments, change on the other measure was positively affected. Peer-ratings of classroom coping also predicted change in self-ratings of classroom coping (p .001, 1.60% V), indicating validity for the self-ratings. Classroom peers tended to agree with students' self-ratings of classroom coping ability, both initially and when gain was assessed. This finding attests to the seriousness with which these students rated themselves, and their classmates.

The Effects of Self-Esteem and Other Attitudes on Self-Perceived Academic Coping. Changes over the year in self-rated classroom coping were consistently related to the other attitudinal measures. As with the correlations at the beginning of the year, positive self-esteem had the strongest influence on subsequent improvement in self-rated academic coping skill (p .001, 4.51% V). Self-esteem clearly reflected a sense of ability-to-cope. The differences in students with high and low self-esteem probably widened over the year because of the stress of school tasks. In line with the saying, "It's not whether you win or lose, it's how you play the game," high self-esteem students may have focused on how thoroughly they applied themselves to school tasks, while low self-esteem students may have focused on the fact that some of their efforts did not succeed. Other student characteristics also influenced change on self-rated coping skill: attitude in general (p .00, 1.36% V) and attitude toward school (p .00, 1.18% V). A positive attitude in either case was associated with a positive gain in self-perceived coping skill, over the year. Attitudes became self-fulfilling prophecies of future attitudes, it might be said.

The Effects of Classroom Behavior on Regressed Change on Self-Rated Academic Coping

The Effects of Time on Task. In the "special study" group of students which was observed in the classroom, observer and teacher ratings positively predicted the students' end-of-the-year self-ratings of classroom coping. These results are presented in Table A COP: SR 3. In Austin II, within the classes, students were observed to spend more time on school tasks improved in their self-evaluations of their coping skills (p .05, 1.28% V). Other research has shown that high percentages of class time engaged in tasks produce greatest school achievement. This finding is the first to show that time spent on task influences the student's own perception of his/her academic competence.

The Effects of Observed Coping Behavior. Within class, teacher ratings of social-emotional coping and academic coping skill also predicted change in students' final self-ratings of classroom coping (Soc-emo, p .0001, 8.86% V) (Acad cop, p .0001, 6.43% V). The teacher's evaluation of students may have directly influenced the students' self-evaluations; or, it may be that the teachers' ratings took into account the quality as well as the quantity (TOT) of students' efforts. The between-class analysis showed the same effect. In addition, students' initial self-ratings interacted with the teacher ratings of academic coping to predict change in self-ratings of classroom coping (Acad cop, p .02, 10.90% V) (Acad cop interaction, p .01, 11.56% V) (see Graph A COP: SR 2). When classes rated themselves low on coping, the teacher's rating of the class' average level of coping had little effect on the classes' final self-perception. However, when the classes rated themselves high on initial coping, if the teacher ratings of coping skill were high or medium, the class tended to change their self-perceptions in an even more positive direction by the end of the year. This finding suggests that teachers' evaluations can influence students' self-perceptions in an even more positive direction by the end of the year. This effect was especially prominent when the classes had high self-ratings. They were more inclined to accept positive teacher evaluations as confirmation of their competence. When the class already perceived themselves as poor at classroom coping, however, teachers' evaluations had little or mixed effect. Practically speaking, if a teacher wanted to use "positive expectations" to help the classes' self-perceptions, the teacher needs to know this may only work when the students already have an initial positive perception of their ability.

Summary

Self-rated coping (BRS-OR) was not used as a criterion variable in Austin I and Kentucky; thus, only the results from Austin II were reported. Self-esteem was the most powerful predictor of self-rated academic coping in Austin II. However, although not as strong as self-esteem, general coping skills, achievement, and attitudes toward school and life were also positive predictors of self-rated coping. The most powerful were academic coping and social-emotional coping skill, as rated by their teachers. Observed coping behavior predicted how students would change in their self-perceptions of their coping skill. Time on task was also a positive predictor of gain in self-rated academic coping.

TABLE A COP: S-R 1

THE RELATIONSHIP BETWEEN INITIAL ACADEMIC COPING: SELF-RATING AND PUPIL CHARACTERISTICS

	Correlations with Self-rated Coping		
	Austin 1	Austin 2	Kentucky 1
Achievement	.30	.14	.20
Academic Coping: Peer Rating	.42	.24	.32
General Coping: Self Report	.35	.28	.24
Attitude - General	.34	.21	.25
Attitude - School	.33	.28	.29
Self-Esteem	.53	.40	.52

TABLE A COP: S-R 2
THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN ACADEMIC COPING: SELF RATING

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement					within							
					L	.001	1.49	+				
					p2	.02	.46					
					between							
					L	.04	1.12	+				
Academic Coping: Peer rating					within L	.001	1.60	+				
General Coping: Self-report					within L	.001	2.00	+				
Attitude: School					within L	.001	1.18	+				
Attitude: General					within L	.001	1.36	+				
Self-esteem					within L	.001	4.51	+				

TABLE A. COP: S-R 3

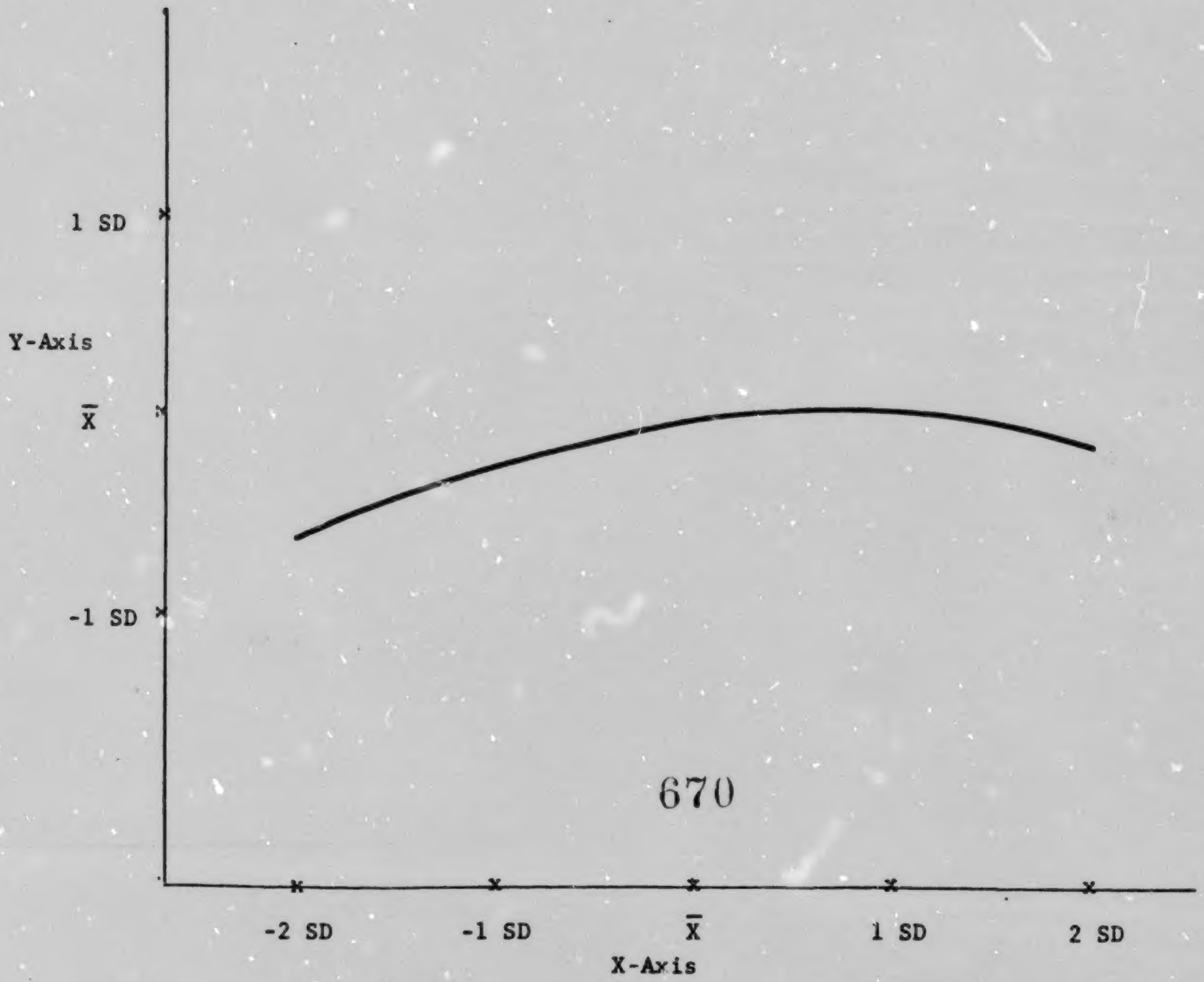
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ACADEMIC COPING: SELF-RATED

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task					within							
					L	.05	1.28	+				
Academic Coping					within							
					L	.0001	6.43	+				
					between							
					L	.02	10.90	+				
					xp	.01	11.56					
Social-Emotional Coping					within							
					L	.0001	8.86	+				

GRAPH A COP: S-R 1

Y-Axis (Criterion) BRS-SR Post
X-Axis (Predictor) BRS-OR Pre
Grouped on

Effect Pupil-Q
Year and site Austin II
Unit of Analysis Within Class
Pretest controlled Yes

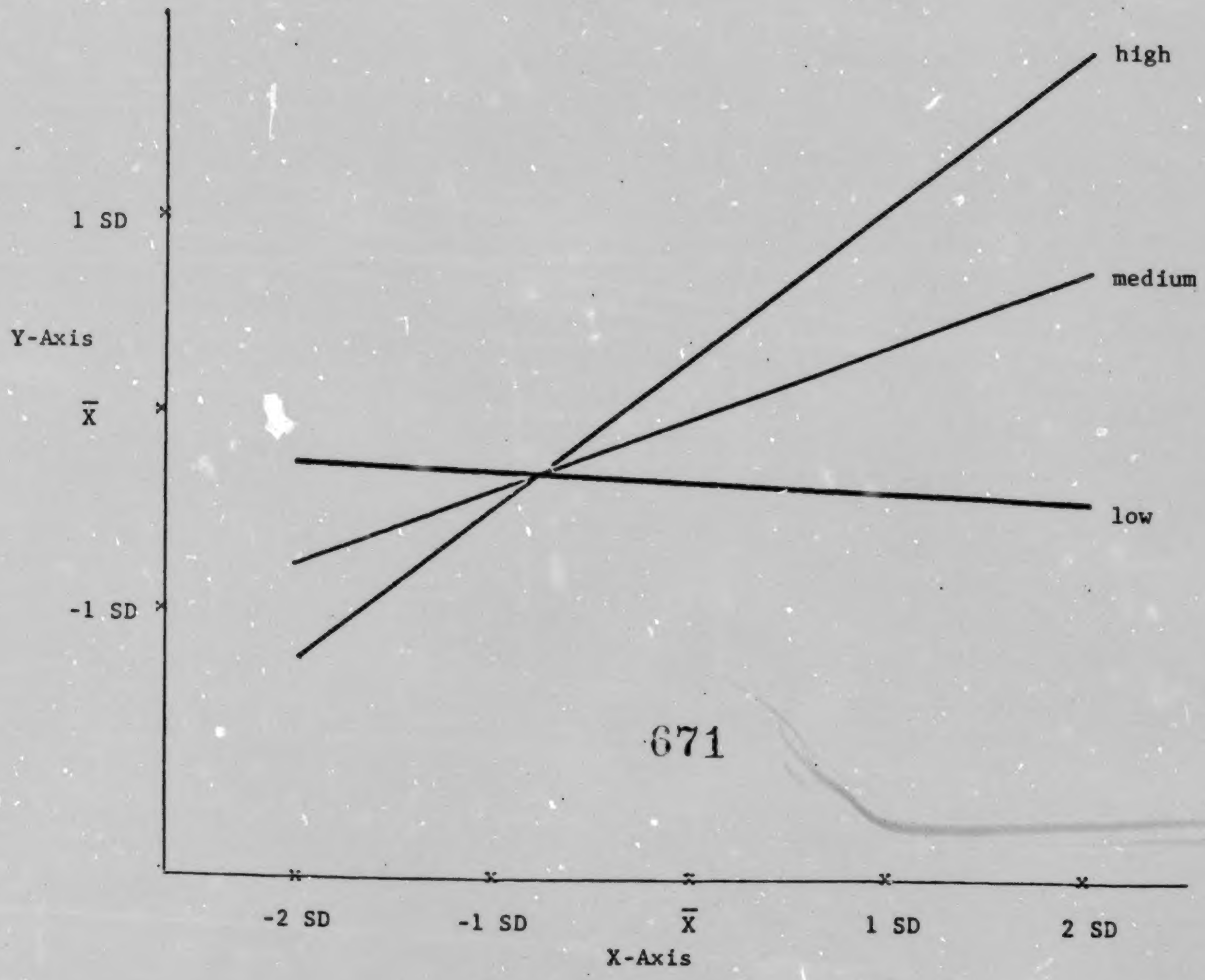


670

GRAPH A COP: S-R 2

Y-Axis (Criterion) BRS-SR Post
X-Axis (Predictor) BRS-SR Pre
Grouped on Academic Coping

Effect X p
Year and site Austin II
Unit of Analysis Between Class
Pretest controlled Yes



671

Learning Outcome: Self-Rated General Coping Skills
Student Sentence Completion (SSC-C)

The Relationship between Initial General Coping: Self-Report and other Pupil Characteristics at the Beginning of the Year

At the beginning of the year, self-reported coping skill was substantially correlated with several other self-report measures in the three samples which were tested. These correlation coefficients are presented in Table G COP: S-R 1. The student's self-rated general coping skills were highly correlated with his/her general positive attitude (Austin I .52, Austin II .52, Kentucky .46) and his/her attitude toward school (Austin I .45, Austin II .52, Kentucky .37). At the beginning of the year the child's sense of being able to cope with life in general was positively related to a positive attitude toward school. A positive correlation with the student's self-esteem was also found (Austin I .36, Austin II .35, Kentucky .24). A positive, yet lower correlation was found with the student's sense of ability to handle school (Austin I .35, Austin II .28, Kentucky .24). The validity of the self-rating, however, was weak, by comparison with the rating of academic coping skill. (Austin I .12, Austin II .24, Kentucky, not significant). Self-rating of general coping skill correlated least of all with achievement (Austin I .07, Austin II .13, Kentucky, not significant).

The Effects of Student Characteristics on Regressed Change in General Coping: Self-Report

The Effects of Achievement on General Coping: Self Report. Although initial achievement had been barely related to initial self-perceived coping skill, in the Austin I sample it had a positive, linear effect on regressed change in self-rated, general coping skill over the year, in both the within-class analysis (p   .001, 1.19 % V) and the between-class analysis (p   .001, 13.71% V). (See Table G COP: S-R 2). The higher the initial achievement level, the greater was the gain in general coping over the year. The within-class analysis of Austin I also yielded an interaction effect (p   .001, .47% V) between initial achievement and initial self-reported coping in the predictions of regressed change over the year. This finding, which is illustrated in Graph G COP: S-R 1, indicates that the effects of initial achievement were increasingly marked and positive for those students who scored higher on their initial self-appraisal of coping skill. Those who expressed the most confidence in their coping skill, to begin with, gained even more confidence over the year if they were, in fact, high achievers. This effect was absent for students who had initially given themselves below-average descriptions as copers. In this Austin I sample, having an initial self-picture of below-average coping ability, whether it was accurate or inaccurate, meant that their initial achievement level was ineffectual in influencing much improvement in their self-perceived coping effectiveness.

No significant effects of achievement on self-rated coping were found in Austin II or Kentucky.

The Effects of Peer-Rated Academic Coping in Regressed Change on Self-Report General Coping

Peer-rated academic coping had a positive, linear effect on general coping in the within-class analysis in both Austin I (p .001, 3.44% V) and Kentucky (p .02, .63 % V). The results of the between-class analysis also yielded a replicated, positive, linear effect (Austin II, p .03, 6.89 % V; Kentucky, p .001, 30.19% V) between academic coping and general coping. These results, presented in Table G COP: S-R 1, indicate that the more effective the peer-rated academic coping of students and classes at the beginning of the year, the greater was the increase in their self-reported general coping at the end of the year. In Austin I, the results of the within-class analysis also yielded a significant interaction effect (p .01, .35% V) between initial academic coping and initial self-perceived coping in the prediction of regressed gain in self-perceived general coping. As illustrated in Graph G COP: S-R 2, this interaction effect is similar to the interaction effect with achievement which was previously reported. The effects of initial peer-rated coping were increasingly strong for those students who scored higher on their initial self-appraised general coping ability. The effect was weaker for students who had initially given themselves below-average ratings on their general coping ability. It may be, that students who initially perceived themselves to be effective copers were more receptive to positive feedback from others about their coping ability and thus gained in their perception of their coping ability more than those who initially perceived themselves as poor copers. This result also seems to support the idea that students who realistically perceive themselves as good copers are more likely to gain further confidence in their skills.

The Effects of Self-Rated Academic Coping on Self-Perceived General Coping

Self-rated academic coping had a positive, linear effect on self-perceived general coping in two of the samples: Austin II (p .001, 2.21% V) and Kentucky (p .001, 3.96% V), in the within-class analysis. The Kentucky between-class analysis also yielded a strong linear relationship between self-rated academic coping and general coping (p .001, 40.60% V). These results are presented in Table G COP: S-R 2. The higher the students' and class' academic coping, the greater was their increase in self-perceived general coping skill. Although students' initial perceptions of their academic coping ability were only modestly related to their initial perception of their general coping ability (Table G Cop S-R 1), their subsequent gain in their sense of being able to cope with life in general was significantly enhanced when they saw themselves able to cope well in school, in two of the three samples.

The Effects of Attitude toward School on General Coping: Self-Report

Attitude toward school had a strong, positive, linear effect on gain in self perceived general coping skill samples: Austin I (p .001, 2.83% V), Austin II (p .001, 3.42% V), and Kentucky (p .001, 4.35% V) (see Table G COP: S-R 2). These were the results of the within-class analysis. The more positive the students' attitude toward school, the greater was the increase in their self-perceived general coping skills. A strong linear relationship between these two variables was also found in the Kentucky between-class analysis (p .01, 23.06% V).

The results of the Kentucky within-class analysis also yielded a significant curvilinear effect between attitude towards school and change in self-perceived coping ability (p .01, .68% V), illustrated in Graph G COP: S-R 3. In this sample, students gained in their self-perceived coping only when their initial attitude towards school was moderately or very positive. The more positive the attitude, the greater the increase in self-perceived coping, given that their initial attitude was not below the mean. Students with poor initial attitudes toward school did not gain in self-perceived coping ability. Attitude toward school reinforced general, self-perceived coping skill only when the attitude was at least moderately positive, to begin with.

The Effect of Attitude toward Life in General on General Coping: Self-Report

The effects of initial, general attitude on gain in self-perceived coping ability are presented in Table G COP: S-R 2. The results of the within-class analysis in two samples, Austin I (p .001, 1.30% V) and Austin II (p .001, 1.67% V), showed a positive linear relationship between general attitude and gain in self-perceived general coping. A positive, linear relationship between these variables was also found in Kentucky (p .04, 16.29% V) in the between-class analysis. The more positive the students' and class' general attitude toward life, the greater were their gains in self-perceived coping skills, over the year.

The linear effect of the between-class analysis in Kentucky is qualified by a pre-test by pupil interaction (p .03, 15.23% V). This effect is illustrated in Graph G COP: S-R 4. In classes which had a medium or low initial sense of capacity to cope, a positive initial attitude enabled them to increase their sense of capacity to cope; whereas a negative initial attitude lowered their sense of capacity to cope over the year. This effect was strongest for classes that started very low in self-perceived coping. Conversely, where classes had an initially high sense of capacity to cope, they gained further confidence in their coping ability if their general attitude was initially negative but lost a little ground if their initial attitude was very positive. This result may mean that a positive attitude was most beneficial to those students who perceived themselves as poor copers, because it gave them the motivation to keep trying; while classes who already perceived themselves as good copers may have felt no further need for improvement, and may not have tried as hard to maintain their coping skills.

The Effects of Self-Esteem on Regressed Change on General Coping: Self-Report

Self-esteem had a strong, positive, linear effect on self-perceived general coping which was replicated in all three samples (Austin I, p .001, 3.05% V; Austin II, p .001, .88% V; Kentucky, p .0001, 2.56% V) (see Table G COP: S-R 2) in the within-class analysis. The more positively the students felt and thought about themselves at the beginning of the year, the greater were their self-perceived coping skills at the end of the year. Again, as in the cases of achievement and peer-rated coping, within-class analysis in Austin I yielded an interaction effect between self-esteem and initial self-perceived general coping in the prediction of regressed gain in self-perceived coping ability (p .01, .40% V). This interaction effect is illustrated in Graph G COP: S-R 5. The effects of self-esteem were most marked and positive for those students who scored higher on their initial self-appraised coping skill. Conversely, for those students who perceived themselves as poor copers initially, the influence of self-esteem was much weaker. This pattern was also demonstrated by the curvilinear relationship between self-esteem and self-perceived coping found in the Austin I, within-class analysis (p .001, 3.05% V), which is illustrated in Graph G. Cop: S-R 6.

The Effects of Classroom Behavior on Self-Reported General Coping

The effects of observed classroom behavior on general coping are presented in Table G COP: S-R 3.

The Effects of Time on Task (TOT). Looking just at the "special study" sample, which was individually observed, change in self-reported coping skill was positively affected in a linear way by their time-on-task behavior (Austin I, within, p .001, 3.3% V; Kentucky, between, p .05, 15.8% V). In addition, in Austin I there was also a curvilinear effect (p .0004, 2.65% V), illustrated in Graph G COP: S-R 7. The important effect came at the upper end: being average TOT did not have much more effect on sense of coping than being low TOT, but high TOT "produced" a high gain in self-rated coping.

This threshold effect, which also appeared on many other outcomes, would seem to have considerable practical importance for educators. It seems advisable to try to manage individual students and classes in such a way that all students are on-task a high proportion of the time; "just average" doesn't always accomplish much. This is far easier to say than to do for, as is shown elsewhere, time-on-task behavior is powerfully determined by intra-individual forces; it cannot easily be brought into being for many students, even by the most effective classroom management practices. But the consequence of only somewhat less effective management can be disproportionately ineffectual. In this instance, the effect is on the student's sense of competence to cope with a wide array of problems of living.

In Kentucky, an interesting interaction, illustrated by Graph G COP: S-R 8, was found between the initial self-perception of ability to cope and the effects of the amount of time the students spent on school tasks (between-class, p .05, 15.78% V). Classes that had low initial self-ratings for general coping skill gained much more in this respect if they were high time-on-task. Classes with high initial self-ratings, either showed less effect of time-on-task, or even a degree of loss. It was particularly advantageous to maintain high time-on-task behavior in the classes that were average or lower in their sense of general coping skill.

The Effects of Academic and Social-Emotional Coping. It tends to vindicate both the teachers' and the students' judgment to find that those students who gained over the year in their sense of coping skills were usually those whose teacher rated them higher in academic coping (Austin I, p .0001, 6.54% V; Kentucky, p .03, 2.64% V) and social-emotional coping skills (Austin I, p .0001, 3.25% V; Austin II, p .03, 1.34% V). These replicated, positive, linear relationships were the results of the within-class analysis. The results of the between-class analysis of Austin II also yielded positive, linear effects of academic coping (p .04, 6.52% V) and social-emotional coping (p .02, 9.30% V) on gain in self-perceived general coping skill. This convergence of judgments seems to suggest that the SSC-C instrument, severely limited though it is by its rather transparent, multiple-choice format, possesses some degree of validity for assessing actual coping skill, insofar as it ran parallel to teacher judgment.

In the same special study group, the linear effect of teacher rating of academic coping in Austin II, between- class analysis, was qualified by a pre-test by pupil interaction (p .02, 8.21% V). This effect is illustrated in Graph G COP: S-R 9. Essentially, teacher ratings of academic coping mostly agree with the classes' initial self-perception of coping capacity, in predicting change in that self-perception over the year. However, when the classes initially perceived themselves as extremely good or extremely bad at coping, the gradation of teacher judgment (high, medium, or low) had little relationship to the change in student self-perceptions over the year. These few, extreme classes' pattern of change was simply unrelated to their observable coping skill, as the teachers saw it.

The Effects of COR-Pupil: Students' Observed Orderly Classroom Behavior. The results of Austin I, between class analysis, yielded a positive linear relationship between the classes' observed orderly classroom behavior, and gain in their self-perceived coping ability. The more orderly their behavior, the greater the increase in their self-perceived coping skills. This between-class analysis also yielded a quadratic interaction effect between COR-Pupil and initial self-perceived coping ability in the prediction of gain in self-perceived coping (p .04, 5.78% V).

Summary: Replication of Findings

The two student characteristics which had the strongest effect on self-perceived general coping skill were self-esteem and attitude toward school. The within-class, linear effects of these two variables on regressed gain in general coping was replicated in all three samples, Austin I, Austin II, and Kentucky. The positive effects of general attitude toward life, peer-rated academic coping, and self-rated academic coping were replicated in two samples; were the positive effects of teacher-rated academic and social-emotional coping skills.

There were also several interaction effects which were consistently found with several of the predictors. Initial self-perceived coping ability interacted with several student characteristics (self-esteem, coping ability, and achievement) in predicting regressed gain in self-perceived general coping. These particular interaction effects indicate that these student characteristics are only positively influential on general coping gain when initial coping ability is high. This finding indicates the importance of initially knowing the students' coping skills, as they see them. It is, therefore, advisable for teachers to spend time at the beginning of the year getting to know their students so that the students' general coping skills, as well as their academic learning, can be enhanced over the school year.

TABLE G COP. S-R 1

THE RELATIONSHIP BETWEEN INITIAL GENERAL COPING: SELF-REPORT AND PUPIL CHARACTERISTICS

	Correlation With Initial Coping (Self-Rated)		
	Austin 1	Austin 2	Kentucky 1
Achievement	.07	.13	NS
Academic Coping: Peer Rating	.12	.24	NS
Academic Coping: Self Rating	.35	.28	.24
Attitude - General	.52	.52	.46
Attitude - School	.45	.52	.37
Self-Esteem	.36	.35	.24

The correlation coefficients presented above are all significant at $p < .001$.

TABLE G COP: S-R 2

THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE ON GENERAL COPING: SELF-REPORT

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement	within											
	xp	.001	.47									
	L	.001	1.19	+								
	between											
	L	.001	13.71	+								
Academic Coping:	within				between				within			
Peer rating	xp	.01	.35		L	.03	6.89	+	L	.02	.63	+
	L	.001	3.44	+					between			
									L	.001	30.19	+
Academic Coping:					within				within			
Self-rating					L	.001	2.21	+	L	.001	3.96	+
									between			
									L	.001	40.60	+
Attitude: School	within				within				within			
	L	.001	2.83	+	L	.001	3.42	+	p2	.01	.68	
									L	.001	4.35	+
									between			
									L	.01	23.06	+
Attitude: General	within				within				between			
	L	.001	1.30	+	L	.001	1.67	+	xp	.03	15.23	
									L	.04	16.29	+
Self-esteem	within				within				within			
	p2	.001	.65		L	.001	.88	+	L	.001	2.56	+
	xp	.01	.40									
	L	.001	3.05	+								

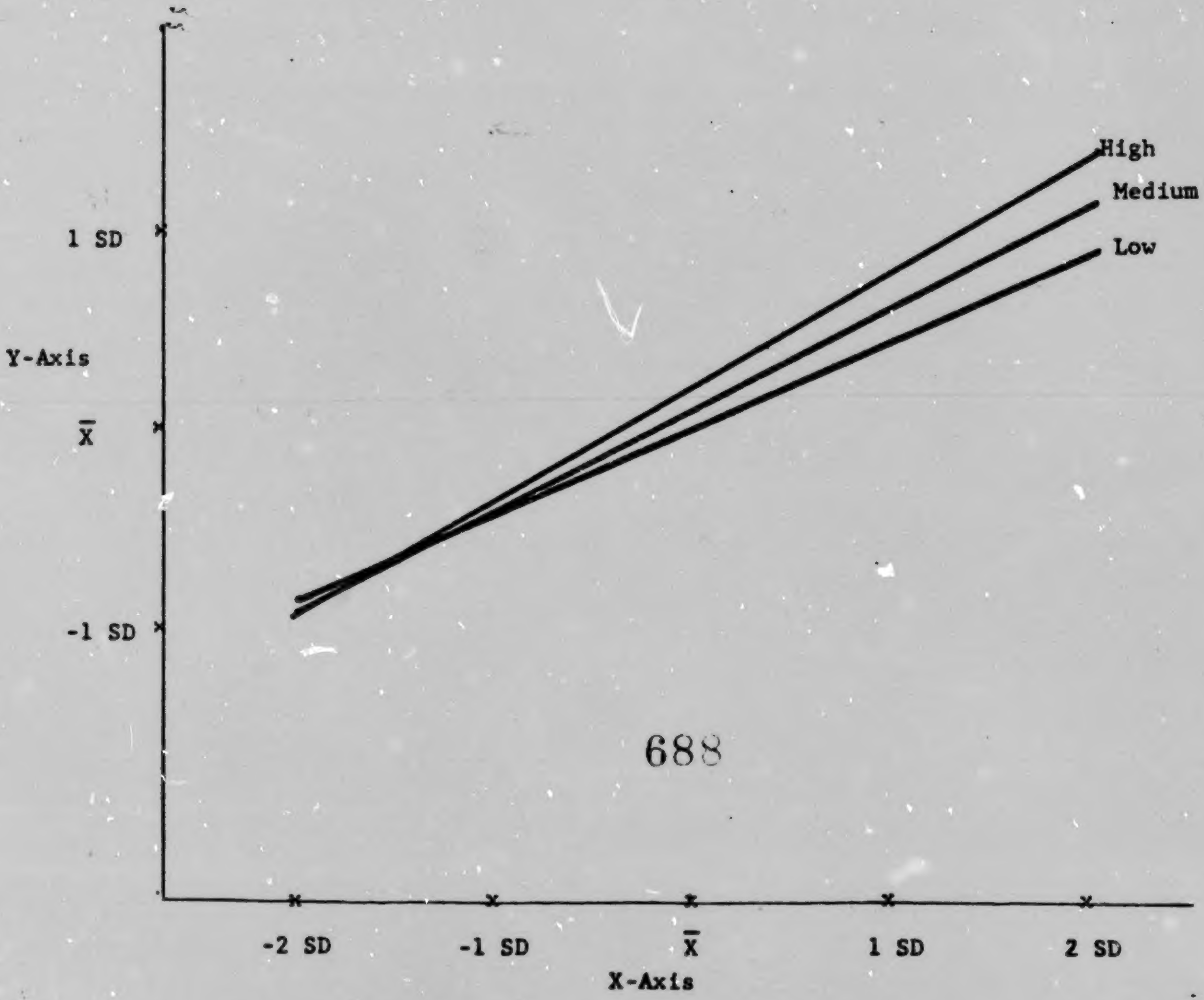
TABLE G COP: S-R 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON GENERAL COPING: SELF-REPORT

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task	within L p2	.001 .0004	3.30 2.65	+					between xp2	.05	15.78	
Academic Coping	within L	.0001	6.54		between L x2p	.04 .02	6.52 8.21	+	within L	.03	2.64	+
Social-Emotional Coping	within L	.0001	3.25		within L between L	.03 .02	1.34 9.30	+ +				
COR-Pupil	between L xp2	.02 .04	6.23 5.78	+ (no graph on summary findings)								

GRAPH G COP: S-R 1

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on Ach (CT)

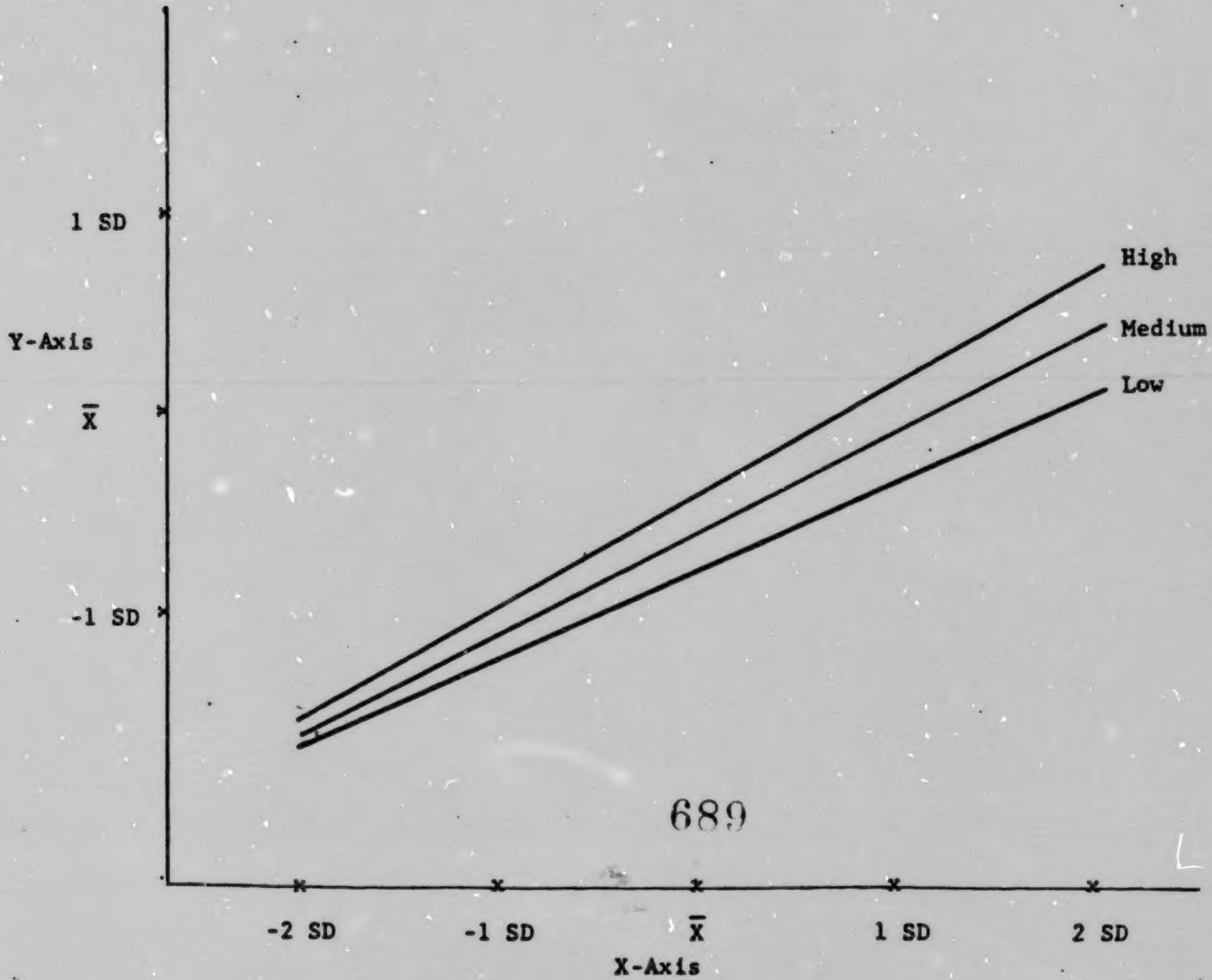
Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled Yes



GRAPH G COP: S-R 2

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on BRS-OR (cop)

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled Yes

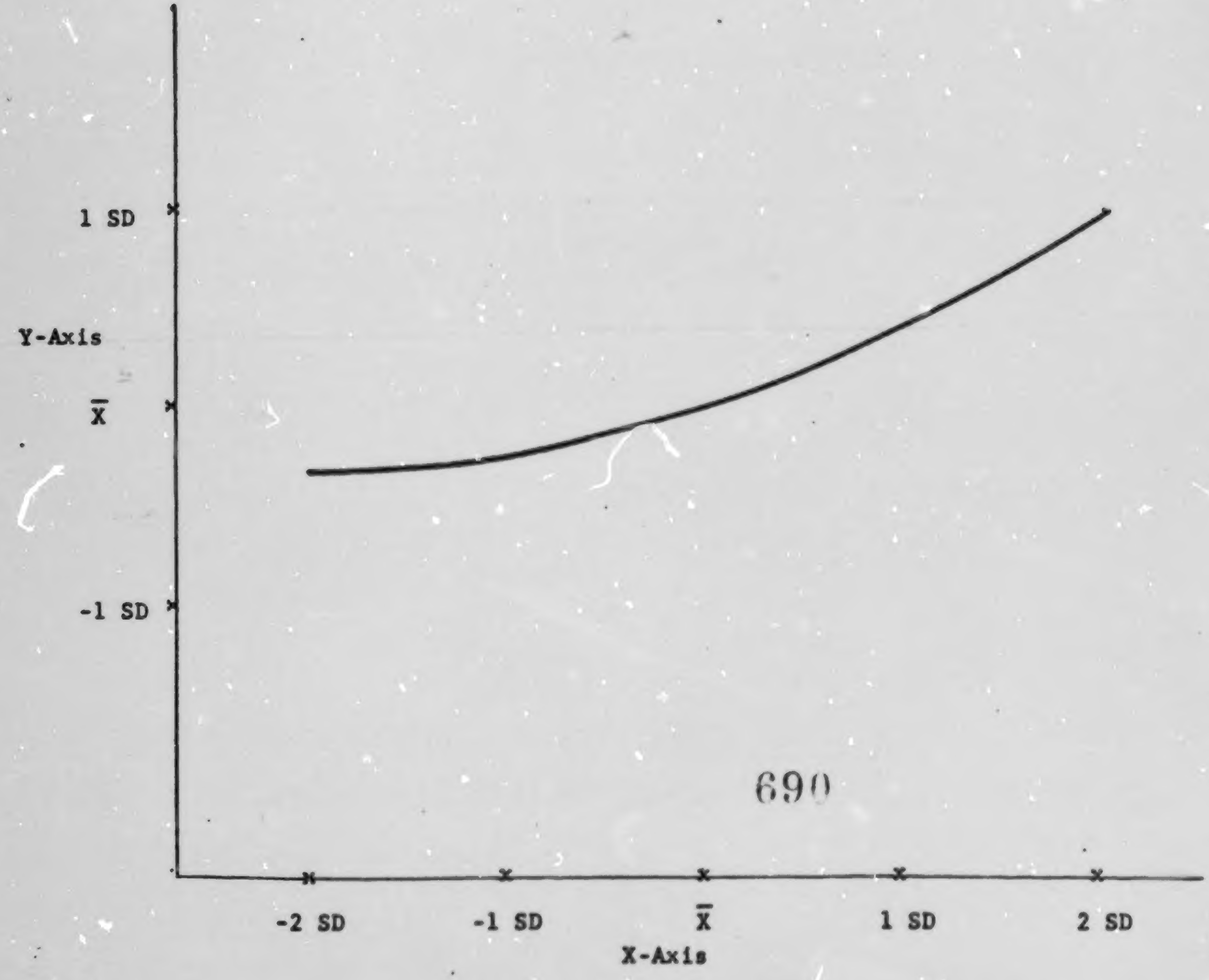


689

GRAPH G COP: S-R 3

Y-Axis (Criterion) SSC-Cop Post.Pre
X-Axis (Predictor) SSI-Att
Grouped on ______

Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled Yes

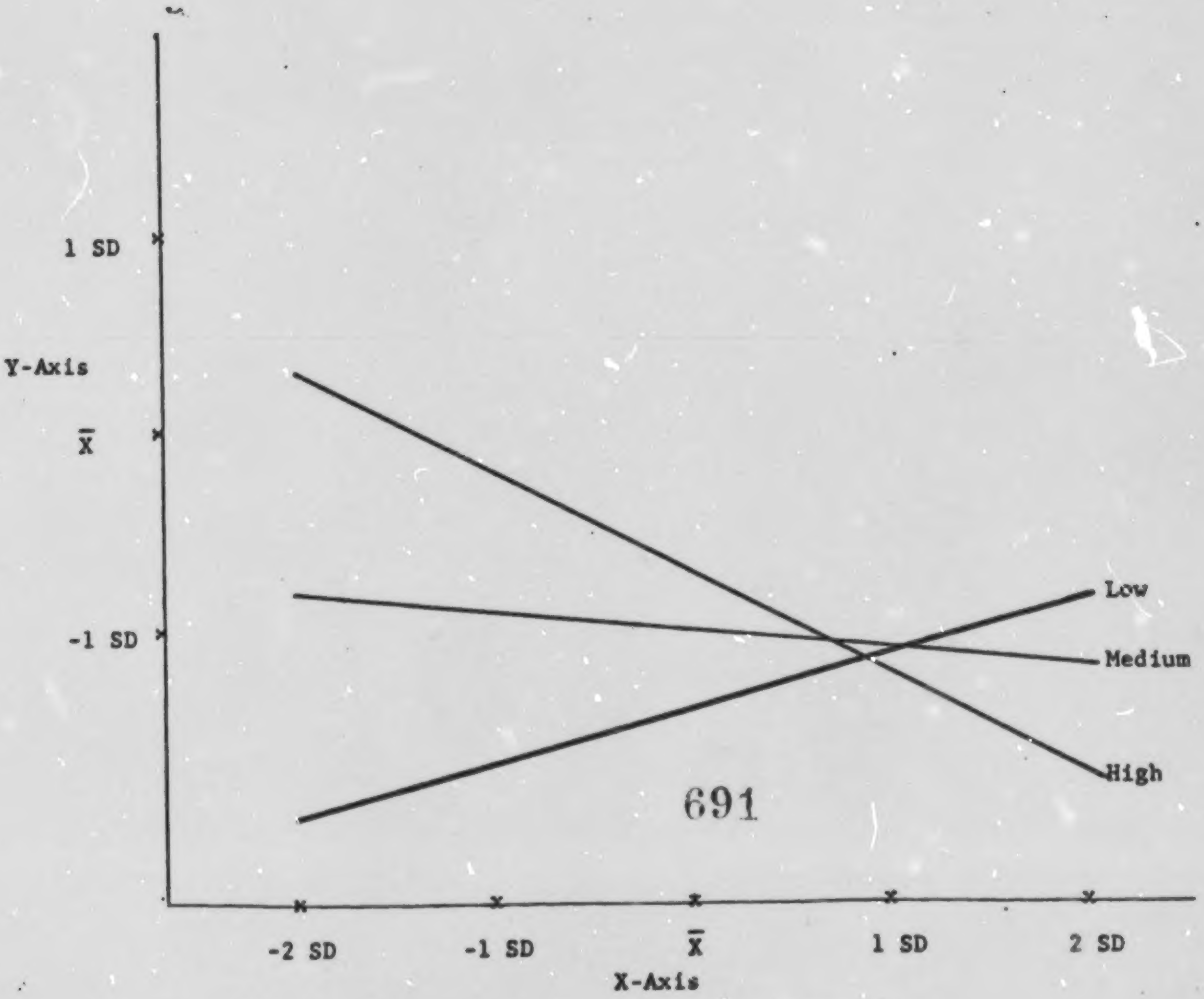


690

GRAPH G COP: S-R 4

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on SSC-att

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of analysis Between-Class
Pretest controlled Yes

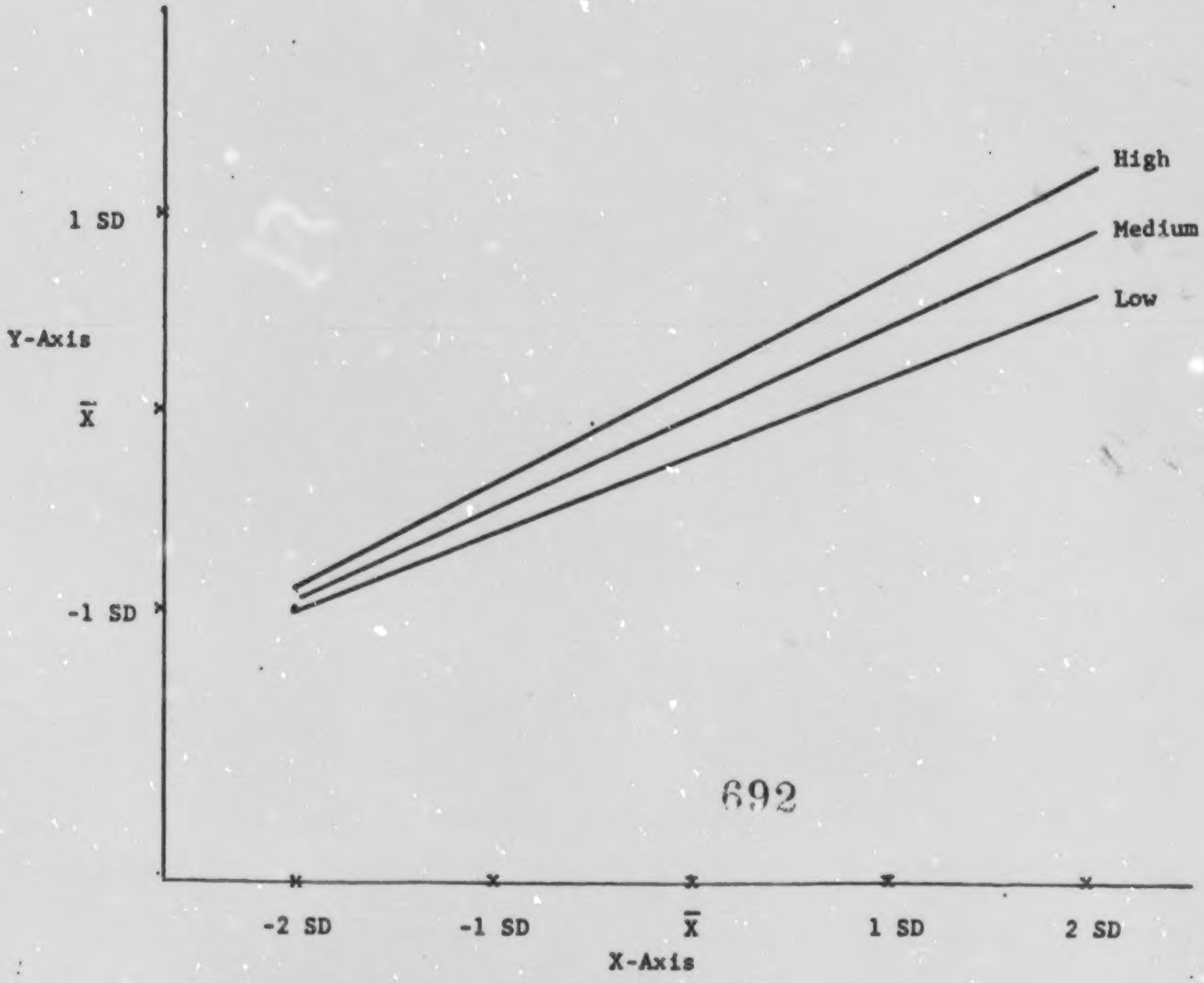


691

GRAPH G   COP: S-R 5

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on Self-est (Att)

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of analysis Within-Class
Pretest controlled Yes

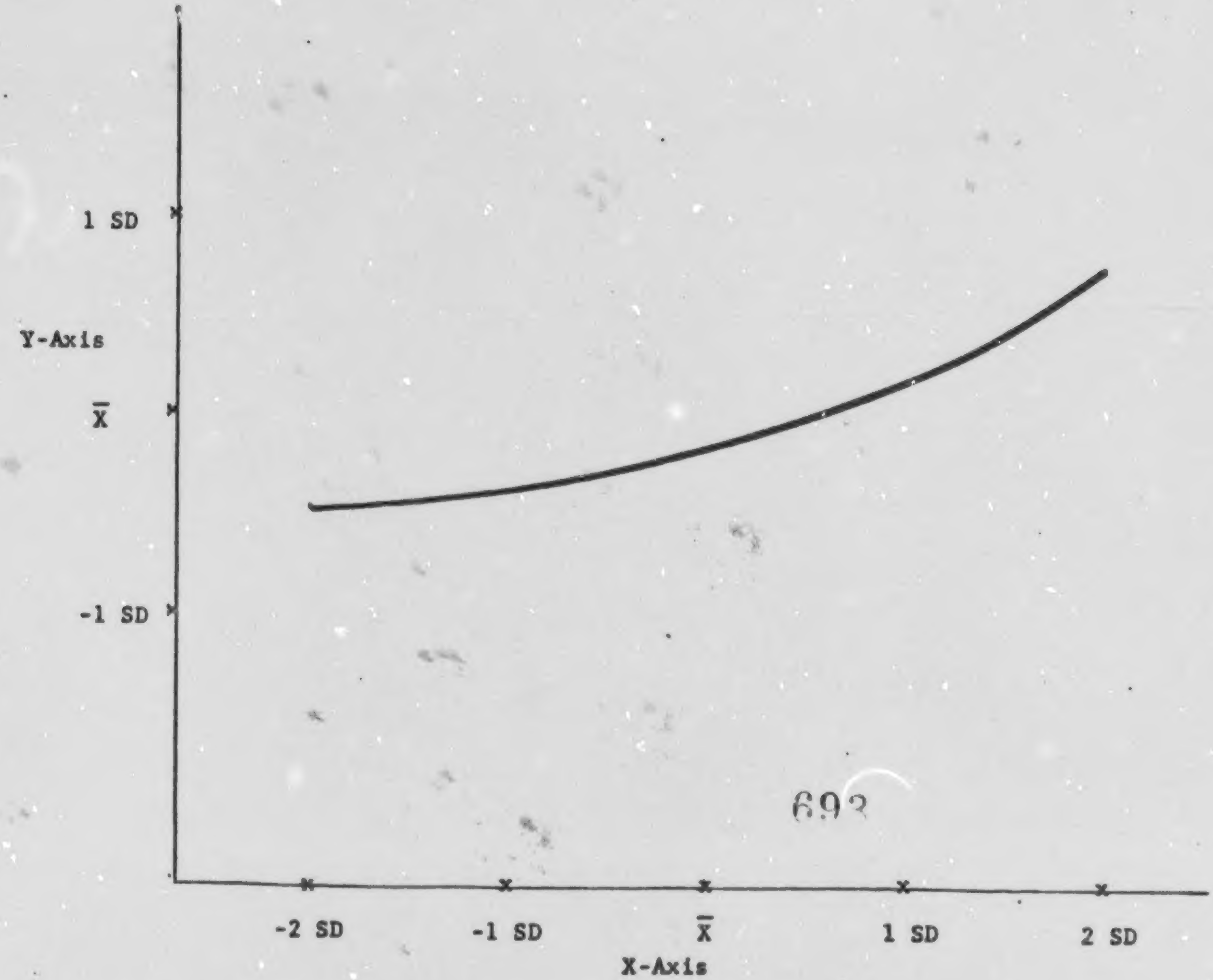


692

GRAPH G COP: S-R 6

Y-Axis (Criterion) SSC-Cop Post.Pre
X-Axis (Predictor) Self-est (P-H)
Grouped on

Effect Pupil-Q
Year and site Austin I
Unit of analysis Within-Class
Pretest controlled Yes

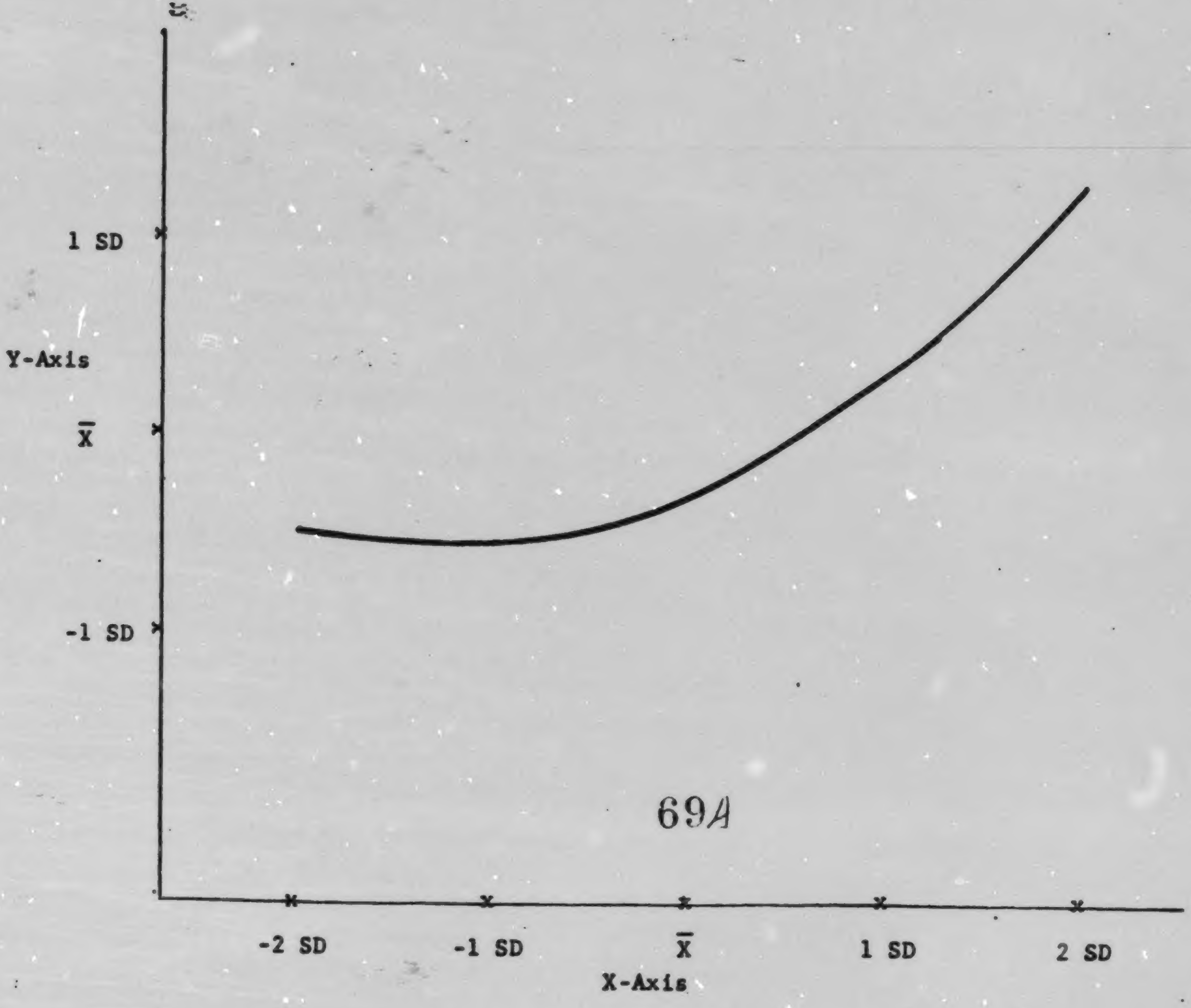


693

GRAPH G COP: S-R 7

Y-Axis (Criterion) SSC-Cop Post Pre
X-Axis (Predictor) TOT
Grouped on

Effect Pupil-Q
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled Yes

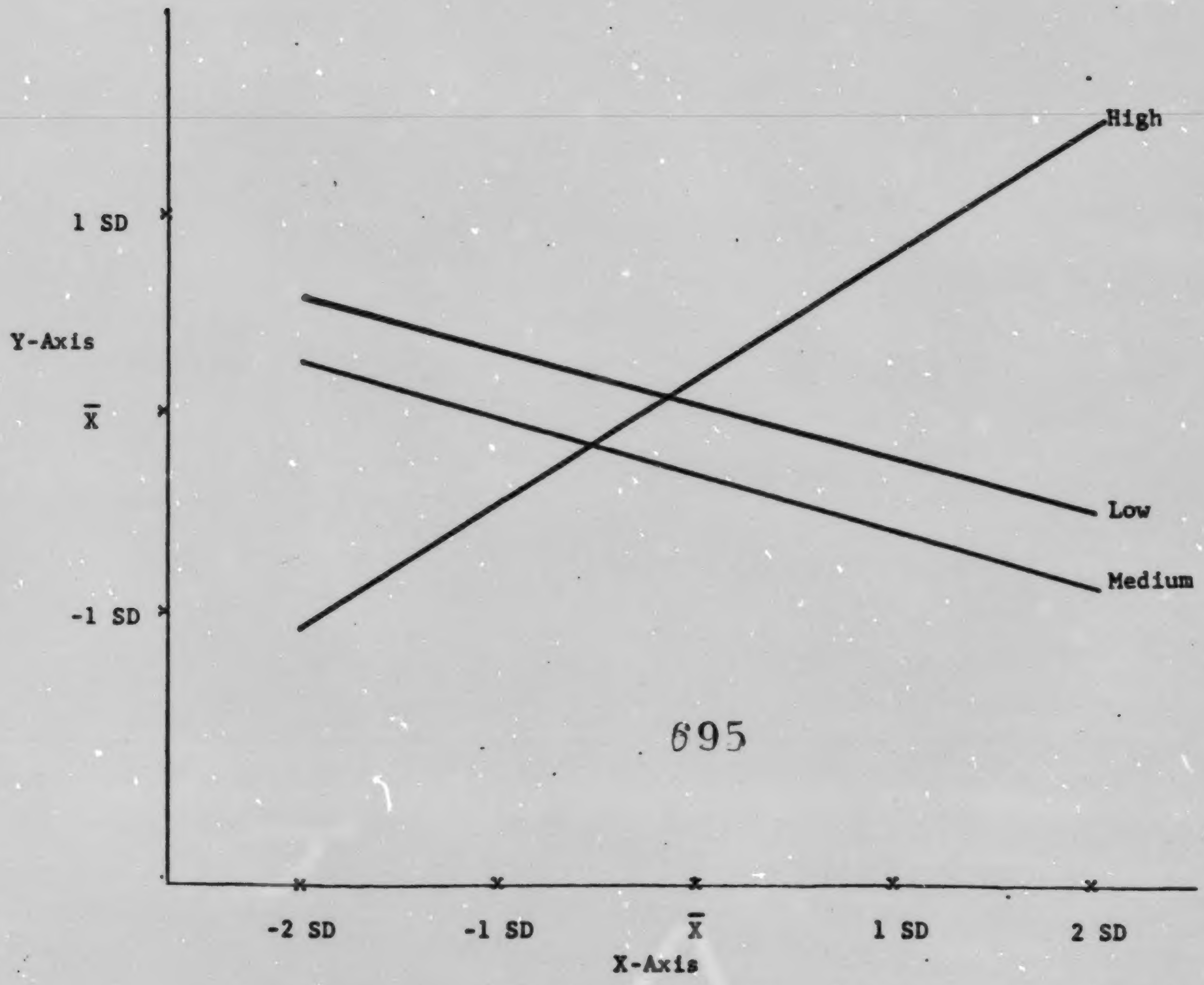


69A

GRAPH G COP: S-R 8

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on TOT

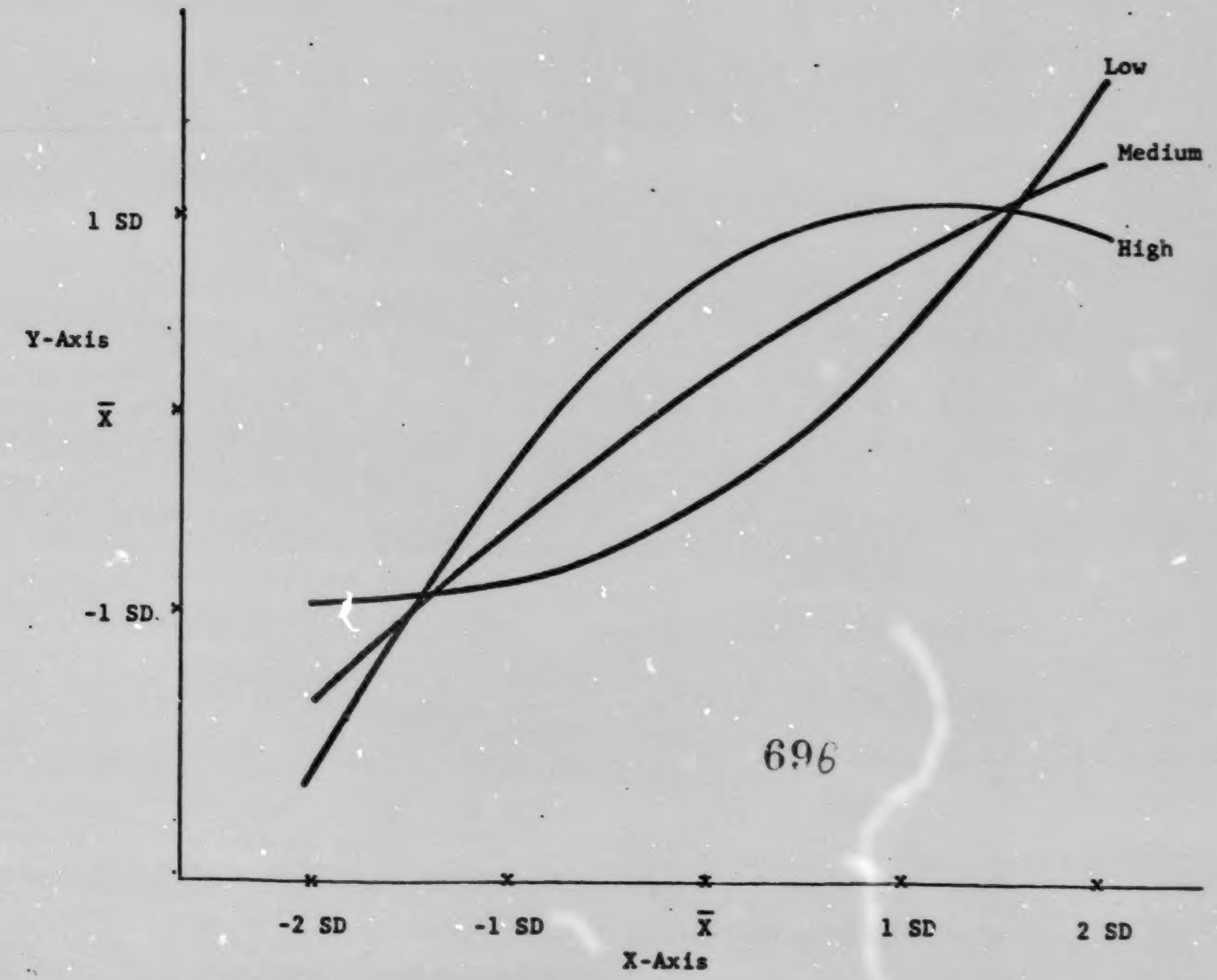
Effect Pre-L x Pupil-Q
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled Yes



GRAPH G COP: S-R 9

Y-Axis (Criterion) SSC-Cop Post
X-Axis (Predictor) SSC-Cop Pre
Grouped on Acad. Cop.

Effect Pre - Q x Pupil
Year and site Austin II
Unit of Analysis Between-Class
Pretest controlled Yes



696

Learning Outcome: General Attitude Toward Life
as Measured by the
Student Sentence Completion - Attitude Scale (SSC-A)

The Relationship between General Attitude Toward Life and Other Pupil Characteristics at the Beginning of the Year

Students' general attitudes toward life early in the year were associated with an overall pattern of self-reported coping skills and, especially, with a positive attitude toward school. In all three samples, students' attitudes (SSC-A) were substantially correlated with attitude toward school (SSI, Austin I, r = .54; Austin II, r = .56; and Kentucky, r = .50), self-reported general coping skills (Austin I, r = .52; Austin II, r = .52; and Kentucky, r = .50), self-esteem (Austin I, r = .38, Austin II, r = .38 and Kentucky, r = .38), and self-rated academic coping skills (Austin I, r = .34; Austin II, r = .21; Kentucky, r = .25). It was much less correlated, though still significantly (p .001), with peer-rated coping skill (Austin I, r = .15; Austin II, r = .12; Kentucky, r = .13). The correlation with achievement (CTBS) was only significant in Austin I, and it was very small (.07). These results are presented in Table GATT 1. The relationship of general attitude to actual, observed coping was supported by the between-class finding that observer ratings of classroom coping (COR-Pupil) correlated .34 (p .05) with SSC-A in Kentucky and .40 in Austin II. Students' overall attitude toward life had a positive relationship to their attitude toward school, and to their behavior in the classroom.

697

The Effects of Student Characteristics in Regressed Change on Attitude: General

Several student characteristics significantly predicted regressed gain in students' general attitude toward life. These results are presented in Table GATT 2.

The Effects of Achievement on General Attitude

The results of within-class analysis of Austin I indicated a significant, linear relationship between achievement and regressed gain in general attitude (p .001, .95% V). The higher the students'initial academic performance, the greater their increase over the year in positive attitude toward life. In Kentucky this effect was qualified by an interaction between achievement and initial general attitude (within-class, p .02, .61% V), illustrated in Graph GATT 1. Kentucky students who had a highly positive initial attitude, and were high achievers, had a further increase in attitude. Conversely, students who were high achievers but had a poor initial attitude gained less in attitude than students who were lower achievers. Students with a positive attitude toward life were even more optimistic, over the year. Students with a negative attitude toward life, on the other hand, almost perversely became more negative, the higher their initial achievement.

The Effects of Academic Coping on Attitude in General

The results of the within-class analysis in all three samples yielded a positive, linear relationship between peer-rated academic coping and regressed gain in positive attitude (Austin I, p .001, 2.27% V; Austin II, p .01, .48% V; Kentucky, p .001, 1.11% V). This positive linear relationship was also found as a result of the between-class analysis in Austin II (p .001, 17.55% V) and Kentucky (p .01, 14.12% V). As with achievement, the higher the academic coping skills, the greater the gain in positive attitude.

In Kentucky, however, the between-class analysis also yielded a puzzling curvilinear interaction effect between initial attitude and peer-rated coping in the prediction of regressed gain in general attitude (p .02, 8.05% V. Graph GATT 2 indicates that classes with poor initial attitudes improved their attitude in inverse proportion to their coping skill. The good-coping classes that had a negative attitude stayed very negative; those with medium attitudes maintained them; those with a good initial attitude lost a little ground, over the year. Average-coping classes with relatively negative initial attitude improved in attitude; if they had positive initial attitudes they became much less positive. In low-coping classes that had below-average initial attitude, the poorer the attitude score, the greater the gain in attitude over the year. Even sheer survival may have been a pleasant surprise for them? In low-coping classes with above-average initial attitude, conversely, the less positive the initial attitude, the more the class lost in final attitude. Only an extremely positive attitude sufficed to maintain itself, in the face of very inadequate coping skills, for those who were optimistic at the beginning.

Why this pattern should operate in Kentucky but not in either Austin sample, it is not possible to say. Its occurrence in even one place, however, is sufficient to warn one against expecting only the simple, linear relationship that held true for most of the students and classes in all three sites.

The Effects of Self-Rated Academic Coping on Regressed Change in General Attitude

The effects of self-rated academic coping also showed positive,b linear effects on attitude toward life in the within-class analysis in Austin II (p .001, 1.01% V) and Kentucky (p .001, 2.81% V). The greater students' academic coping skills, the more positive became their general attitude. This same effect appeared in the between-class analysis (Austin II, p .03, 7.96% V; Kentucky, p .006, 16.29% V).

These effects were qualified by an interaction between self-rated academic coping and initial general attitude in Austin II, within-class (p .07, .43% V). This effect, illustrated in Graph GATT 3, indicates that self-rated coping skills had a more positive influence on general attitude when students' initial attitude was positive. This same type of interaction effect was also found in the within-class analysis of Kentucky (p .05, .43% V), illustrated in Graph GATT 4. Self-rated coping also had an additional curvilinear effect on general attitude (Kentucky, within class, p .01, .74% V). As illustrated in Graph GATT 5, this effect shows that self-rated coping had a positive effect on attitude change only when the students' self-rated coping skills were more effective than average. This result is similar to the curvilinear effect of academic coping. It presents another threhold effect: it took at least average self-perceived coping skill before a greater degree of coping skill affected attitude favorably. This same type of effect was also found in the between-class analysis in Austin II (p .02, 7.84% V). The type of result is evident in Graph GATT 6 and serves to qualify the linear effect that was also found. (A replicated, positive linear effect was found in the between-class analysis, between self-rated coping skills and gain in general attitude.)

The Effects of Self-Perceived General Coping Skills on Regressed Gain in General Attitude

Self-perceived general coping skills had a positive, linear effect on gain in general attitude which was replicated in all three samples, Austin I (p .001, 1.24% V), Austin II (p .001, 1.65% V), and Kentucky (p .001, 1.22% V). This result from the within-class analysis indicates that the greater the students' self-perceived coping skills, the greater the gain in positive general attitude. This effect is qualified by an interaction effect between self-perceived coping and initial general attitude in Kentucky, within-class analysis (p .001, .99% V). This effect, illustrated in Graph GATT 7, indicates that self-perceived coping had the most beneficial effect on gain in attitude when the students' initial attitude was positive to begin with. Students with positive attitudes may both hope and expect to succeed and may therefore gain in positive attitude the more they perceive themselves as actually having effective coping skills.

The Effects of Students' Attitude Toward School on Regressed Change on Attitude in General

Students' attitude toward school had a positive, linear effect on regressed change in students' general attitude toward life. This effect was replicated in the within-class analysis of all three samples, Austin

I (p .01, 2.25% V), Austin II (p .001, 3.12% V), and Kentucky (p .001, 4.29% V). It does seem logical that the more positive students' attitude toward school, the more positive their attitude would be, in general, especially since a large percentage of their time is spent in school. In Kentucky, however, within-class analysis also yielded an interaction effect which qualified the linear relationship. Attitude toward school interacted with the SSC-A pre-test (p .05, .62% V). The effects of attitude towards school were especially pronounced for students who began the year with relatively good general attitudes (see Graph GATT 8). As with self-rated coping skill, students with relatively poor beginning attitudes tended to be more resistant to attitude improvement over the course of the year. In Kentucky, there was also a significant curvilinear effect between initial attitude toward school and change in general attitude (p .001, 1.06% V). This result is illustrated in Graph GATT 9. Initial attitude toward school had a positive effect on genreal attitude only when the students' initial attitude toward school was above average: again, a threshold effect.

The results of the between-class analysis in Austin II also yielded a positive, linear relationship between attitude toward school and gain in attitude in general (p .04, 7.22% V). The between-class analysis of Austin I indicated that attitude toward school was a significant predictor in interaction with the general attitude (SSC-A) pre-test (p .05, 5.73% V). Graph GATT 10 shows that attitude toward school was negatively related to general attitude improvement for those classes beginning with extremely poor general attitudes; for classes with good general attitudes on the pre-test, however, having a positive attitude toward school was highly facilitative of improvement in their more general outlook on life, as measured by the SSC-A. A positive, receiprocal effect operated, but only for those who began with reasonably good general attitudes, or better.

The Effects of Self-Esteem on Regressed Gain in General Attitude

The results of the within-class analysis yielded a positive, linear relationship between self-esteem and regressed gain in general attitude. This effect was replicated in all three samples, Austin I (p .001, 2.21% V), Austin II (p .001, 1.72% V), and Kentucky (p .001, 3.35% V). Students beginning the year with relatively high self-esteem showed more improvement in their attitudes than students with the same initial attitude but lower self-esteem. In Austin I, a significant interaction effect (p .02, .25% V, Graph GATT 11) and a quadratic interaction (p .01, 24% V, Graph GATT 12) between initial attitude and self-esteem were found in the within-class analysis. A similar interaction effect between these variables was also found in Austin II (p .05, .29% V, Graph GATT 13). These results indicate that self-esteem was the most influential when the students' initial attitude was positive. The curvilinear effect found in Austin I (p .001, .24% V) also indicated that self-esteem was more influential when it was high to begin with. This result is illustrated in Graph GATT 14. These results underline the beneficial effect of having a positive attitude and high self-esteem at the beginning of the year.

The results of the between-class analysis on Austin II also yielded a positive, linear relationship between self-esteem and gain in positive general attitude over the year (p .01, 11.68% V). In Kentucky, the between-class analysis yielded a strong curvilinear effect of self-esteem on attitude (p .004, 17.49% V). This effect, illustrated in Graph GATT 15, points out the beneficial effect on gain in general attitude of having above-average self-esteem. In fact, when the classes' level of self-esteem was poor, it had a detrimental effect on general attitude. When the classes' feelings about themselves were negative, more negative feelings toward life resulted. If they were positive toward themselves, then they were more positive about life, in general, by the end of the year.

The Effects of Classroom Behavior on Regressed Change in General Attitude

Individual time on task, academic coping, social-emotional coping, and classes' overall organized behavior were observed during the year. All of these measures were found to have significant effects on changes in attitude. These results are presented in Table GATT 3.

Effects of Time-On-Task. Time-on-task had a positive, linear effect on general attitude in Austin I (p .001, 1.88% V) and Austin II (p .006, 3.25% V). These were the results of the within-class analysis. The more time students spent on- task, the greater was their increase in general attitude. In Kentucky, the results of the between-class analysis yielded two interesting results. There was a curvilinear effect (p .03, 10.65% V) indicating that TOT was beneficial to attitude change only when more than the average time was spent on task. This effect is illustrated in Graph GATT 16. TOT was also found to interact with initial attitude in predicting change in general attitude (p .02, 12.56% V). This result, illustrated in Graph GATT 17, indicates that classes having an initial positive attitude gained more when they spent less time on task. Conversely, classes beginning the school year with very poor attitudes gained more positive attitudes when they spent more time on task. Possibly classes with poor attitudes who spend a lot of time on task get praise from teachers for working hard because their teachers are positively surprised. This might improve such classes' overall attitude toward life. On the other hand, if teachers did not praise classes with positive attitudes who worked hard, because they took such concentration for granted, such classes might lose some of their enthusiasm for life. It would take further study to find out whether this, or other factors explain the kind of pattern observed in the Kentucky sample.

Overall, though, it seems safe to conclude that keeping students on-task is most often likely to benefit their general sense of well-being, not just their academic efficiency.

The Effects of Academic Coping. Academic coping had a positive influence on general attitude change in Austin I (p .001, 5.94% V) and Austin II (p .01, 1.68% V). This replicated effect was the result of the within-class analysis. In Kentucky, the within-class analysis yielded a quadratic interaction effect between initial attitude and academic coping in the prediction of regressed gain in general attitude. This effect, illustrated in Graph GATT 18, indicates that high academic coping skill facilitated gain in positive attitudes especially when students' attitudes were positive to begin with. When students' initial attitudes were below average, having medium coping skills was more conducive to improvement in attitude. Students with initially positive attitude may have expected to be able to master their school environment without any trouble. Since high coping skills would allow them to realize this expectation, their attitude might be expected to improve, as it did. Students with an initially negative attitude, on the other hand, may expect to have trouble in school. When such students had medium coping skills, the pleasant surprise of doing reasonably well may have given them a more positive attitude Students with high coping skills but a negative general attitude would probably experience considerable cognitive and emotional dissonance. Even if they performed well, such conflict might keep them from feeling good about life.

The results of the Kentucky between-class analysis yielded a strong interaction effect between initial attitude and academic coping skills (p .01, 16.56% V). This result, illustrated in Graph GATT 19, indicates that high academic coping skills were only beneficial to classes' attitude when their attitude was positive to begin with. Having good coping skills has no beneficial effects for those classes with poor initial attitudes. Thus, the interpretation involving cognitive dissonance offered earlier seems to be suggested also by the results of the between-class analysis. The quadratic interaction effect found in Austin II's between-class analysis (p .004, 11.98% V) also seems to support the theory that students with negative attitudes but high coping skills experience cognitive dissonance. Graph GATT 20 illustrates that high coping skills are not beneficial to classes with poor initial attitudes. A marked threhold effect appears to have operated with all of the classes, especially those ranked low in coping skill. Only if they had average or better initial attitudes did their subsequent attitude improve.

The Effects of Social-Emotional Coping. The effects of social-emotional coping were very similar to the effects of academic coping on regressed gain in general attitude. The results of the within-class analysis yielded a positive linear relationship between social-emotional coping and regressed gain in general attitude in Austin I (p .001, 3.90% V) and Austin II (p .006, 2.04% V). The better their social-emotional coping skills, the more positive their attitude toward life. In Kentucky, a curvilinear relationship was found in the within-class analysis (p .04, 2.09% V). This result, illustrated in Graph GATT 21, indicates that only an above-average degree of social-emotional coping had a beneficial effect on attitude. With this partial qualification, it appears that the more effective students are in coping with their emotions and their social world, the more positive their attitude toward life becomes.

The results of the between-class analysis in Austin II yielded a quadratic interaction effect (p .006, 10.86% V) similar to the one found for academic coping. This effect, illustrated in Graph GATT 22, also indicates that high social-emotional coping was not beneficial for classes with negative initial attitudes. It was only beneficial with classes having average or better attitudes. The cognitive dissonance theory presented for the quadratic interaction effects of academic coping may also apply as a possible interpretation of this result. Interestingly enough, for classes with a very positive attitude, poor coping skills were no deterrent to an increase in positive attitude.

Could their teachers have responded pleasantly to these classes with a pleasant attitude, despite their relatively poor coping skills? Whatever the reasons, classes with positive initial attitudes were largely the ones that gained in attitude.

The Effects of Students' Organized Classroom Behavior. In Austin I, the results of the between-class analysis yielded a positive linear relationship between COR-pupil and regressed gain in general attitude (p .01, 8.76% V). The more organized the classes' behavior, the greater the increase in general attitude. There was also an interaction between initial attitude and COR-pupil which was predictive of regressed gain in general attitude (p .02, 6.64% V). (These data have not been analyzed for the other samples.)

Summary: Replication of Results

Several student characteristics positively affected regressed gain in attitude toward life, in all three samples, Austin I, Austin II, and Kentucky. The most consistent predictors were attitude toward school, self-esteem, and coping ability, including peer-rated academic coping, social-emotional coping, and general coping ability. The predictive power of achievement was low as compared to other student characteristics, and it was not replicated across all three samples.

Several curvilinear and interaction findings emerged, of a quite similar kind across the several predictors. It took better than average attitudes and coping skills, to begin with, if a positive gain in general attitude were to occur. This threshold effect was evident in many of the curvlinear and interaction effects.

TABLE GATT 1

THE RELATIONSHIP BETWEEN INITIAL ATTITUDE: GENERAL AND PUPIL CHARACTERISTICS

	Correlations with Initial Attitude Austin 1	Austin 2	Kentucky 1
Achievement	.07	NS	NS
Academic Coping: Peer Rating	.15	.12	.13
Academic Coping: Self Rating	.34	.21	.25
General Coping: Self Report	.52	.52	.46
Attitude - School	.53	.56	.50
Self-Esteem	.38	.38	.30

*All correlation coefficients presented above are significant at $p < .01$

TABLE GATT 2
THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE ON ATTITUDE: GENERAL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement	within								within			
	L	.001	.95	+					xp	.02	.61	
Academic Coping: Peer rating	within				within				within			
	L	.001	2.27	+	L	.01	.48	+	L	.001	1.11	+
					between				between			
					L	.001	17.55	+	L	.01	14.12	+
									xp2	.02	8.05	
Academic Coping: Self-rating					within				within			
					L	.001	1.01	+	L	.001	2.81	+
					xp	.07	.43		xp	.05	.43	
					between				p2	.01	.74	
					L	.03	7.96	+	between			
					p2	.02	7.84		L	.006	16.29	+
General Coping: Self-report	within				within				within			
	L	.001	1.24	+	L	.001	1.65	+	xp	.001	.99	
									L	.001	1.22	+
Attitude: School	within				within				within			
	L	.001	2.25	+	L	.001	3.12	+	xp	.01	.62	
	between				between				p2	.001	1.02	
	xp	.04	5.73		L	.04	7.22	+	L	.001	4.29	+
Self-esteem	within				within				within			
	p2	.001	.24		L	.001	1.72	+	L	.001	3.35	+
	xp	.02	.25		xp	.05	.29		between			
	xp2	.03	.24		between				p2	.004	17.49	
	L	.001	2.21	+	L	.01	11.68	+				

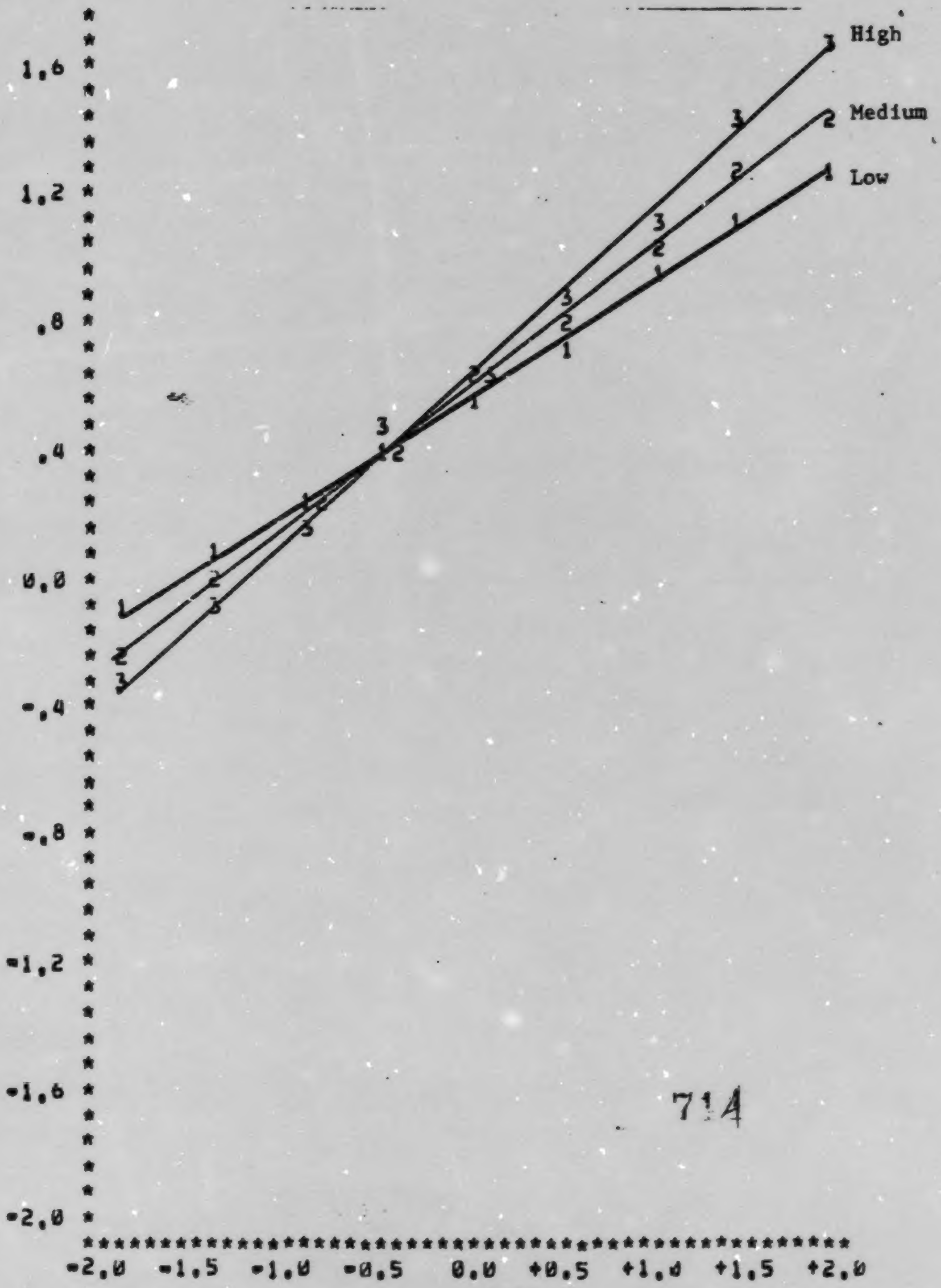
TABLE GATT 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ATTITUDE: GENERAL

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task	within L	.001	1.88	+	within L	.0006	3.25	+	between xp	.02	12.56	
									p2	.03	10.65	
Academic Coping	within L	.001	5.94	+	within L	.01	1.68	+	within xp2	.02	2.54	
					between x2p2	.004	11.98		between xp	.01	16.56	
Social-Emotional Coping	within L	.001	3.90	+	within L	.006	2.04	+	within p2	.04	2.09	
					between x2p2	.006	10.86					
COR-Pupil	between L	.01	8.76	+								
	xp	.02	6.64									

GRAPH GATT 1

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Ach (CT)

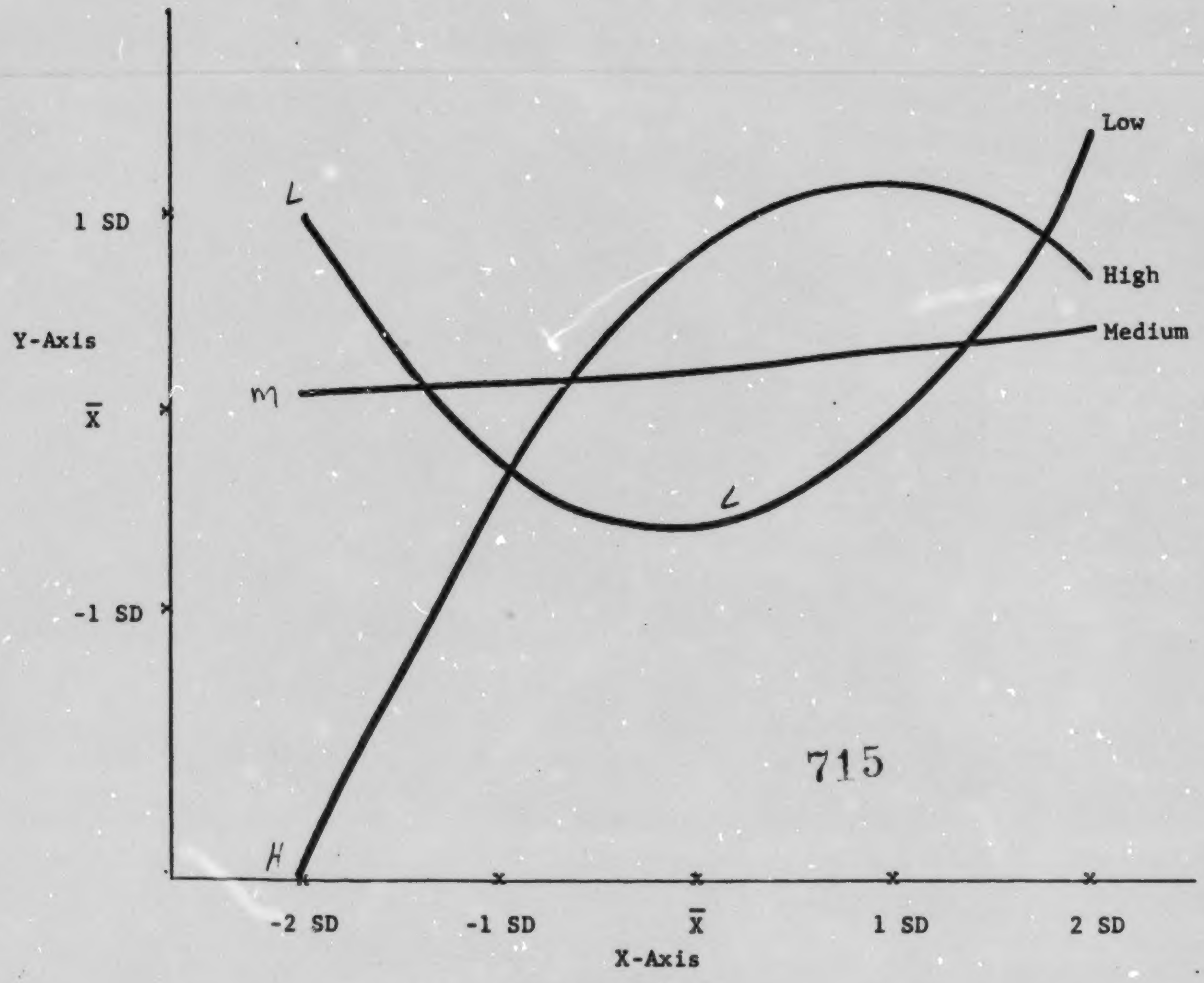
Effect Pre-L x Pupil
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled yes



714

GRAPH GATT 2

Y-Axis (Criterion)	SSC-Att Post	Effect	Pre-L x Pupil-Q
X-Axis (Predictor)	SSC-Att Pre	Year and site	Kentucky
Grouped on	BRS-OR (Cop)	Unit of Analysis	Between-Class
		Pretest controlled	yes

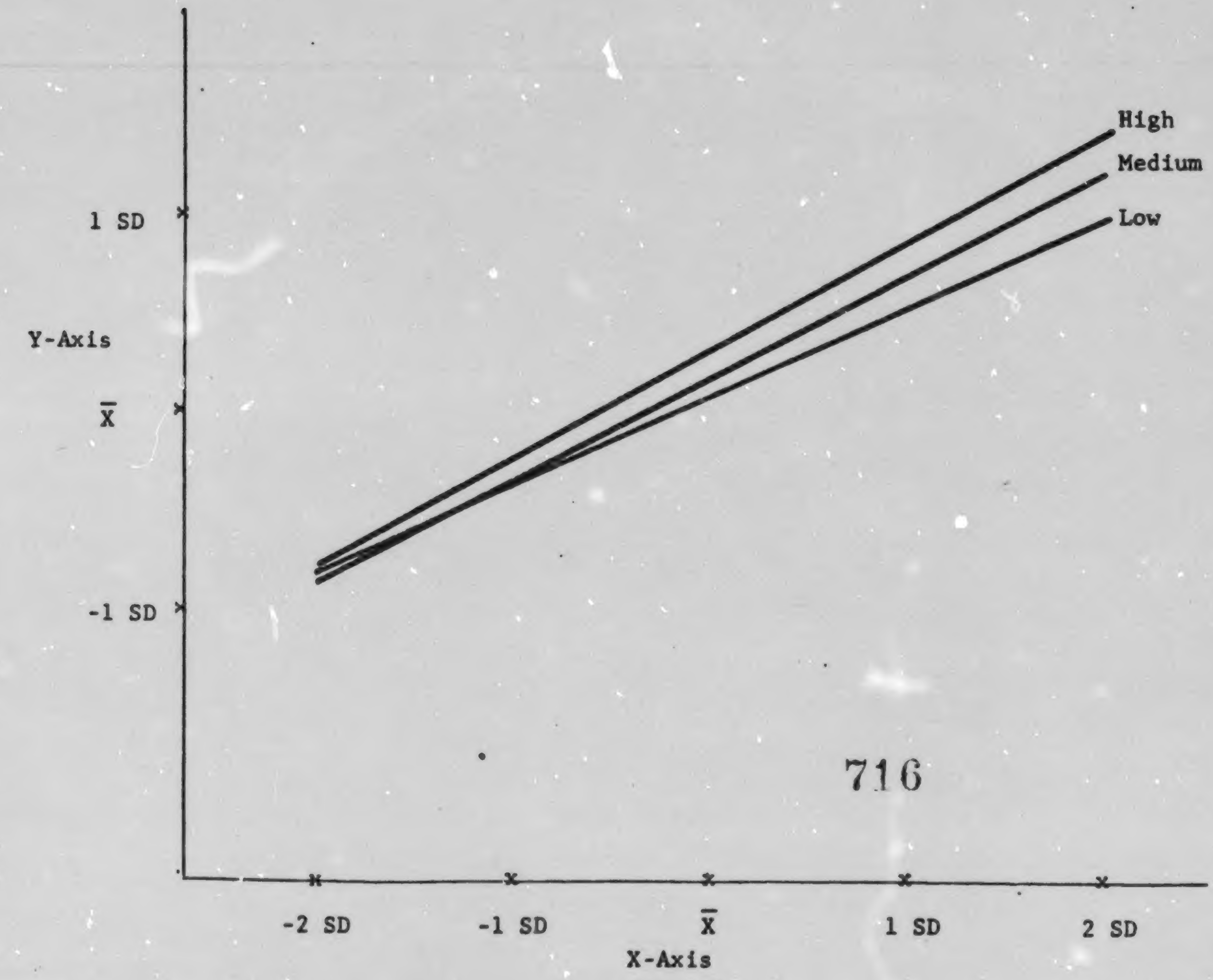


715

GRAPH GATT 3

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on BRS-SR (Coop)

Effect Pre-L x Pupil-L
Year and site Austin II
Unit of Analysis Within-class
Pretest controlled yes

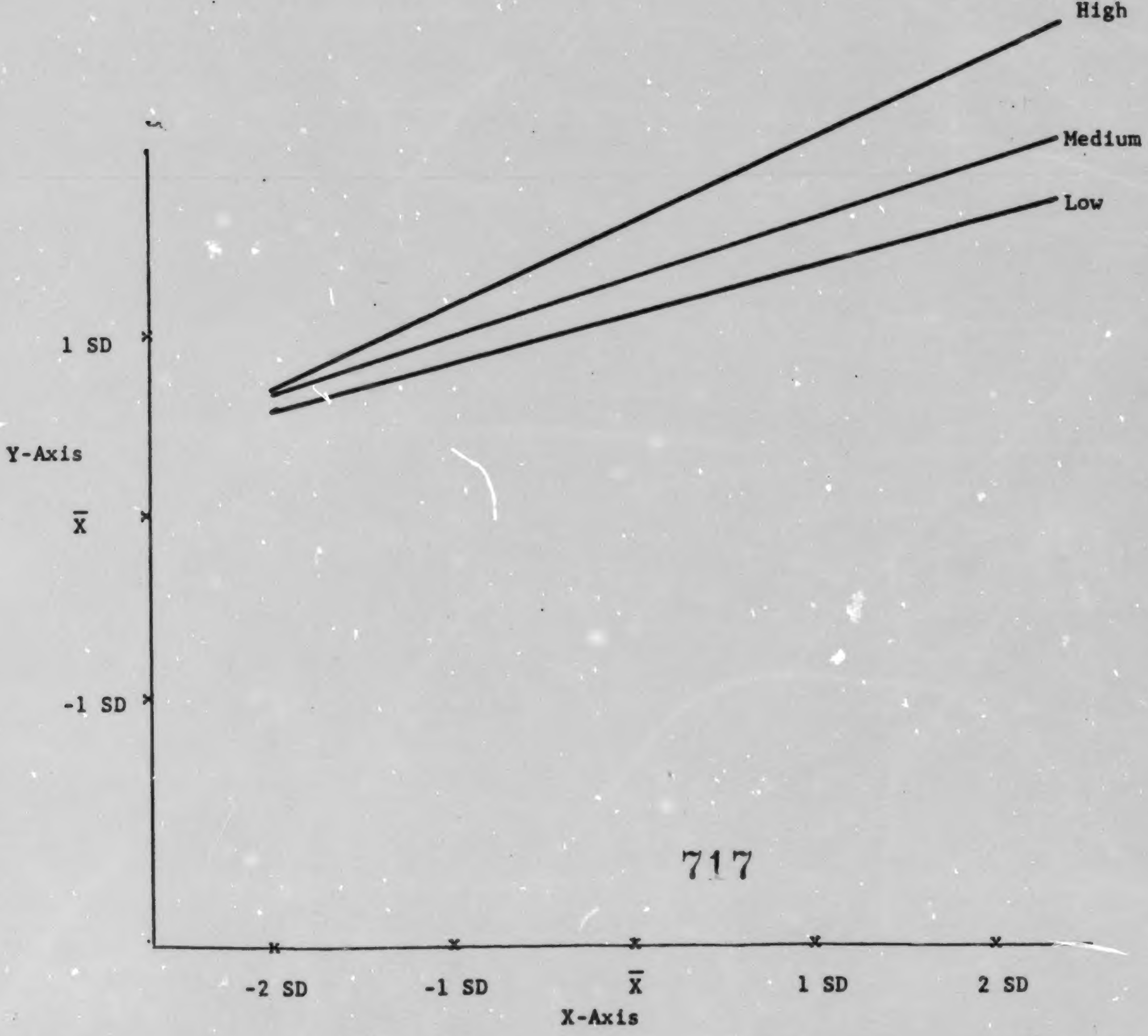


716

GRAPH GATT 4

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on BRS-SR (cop)

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled yes

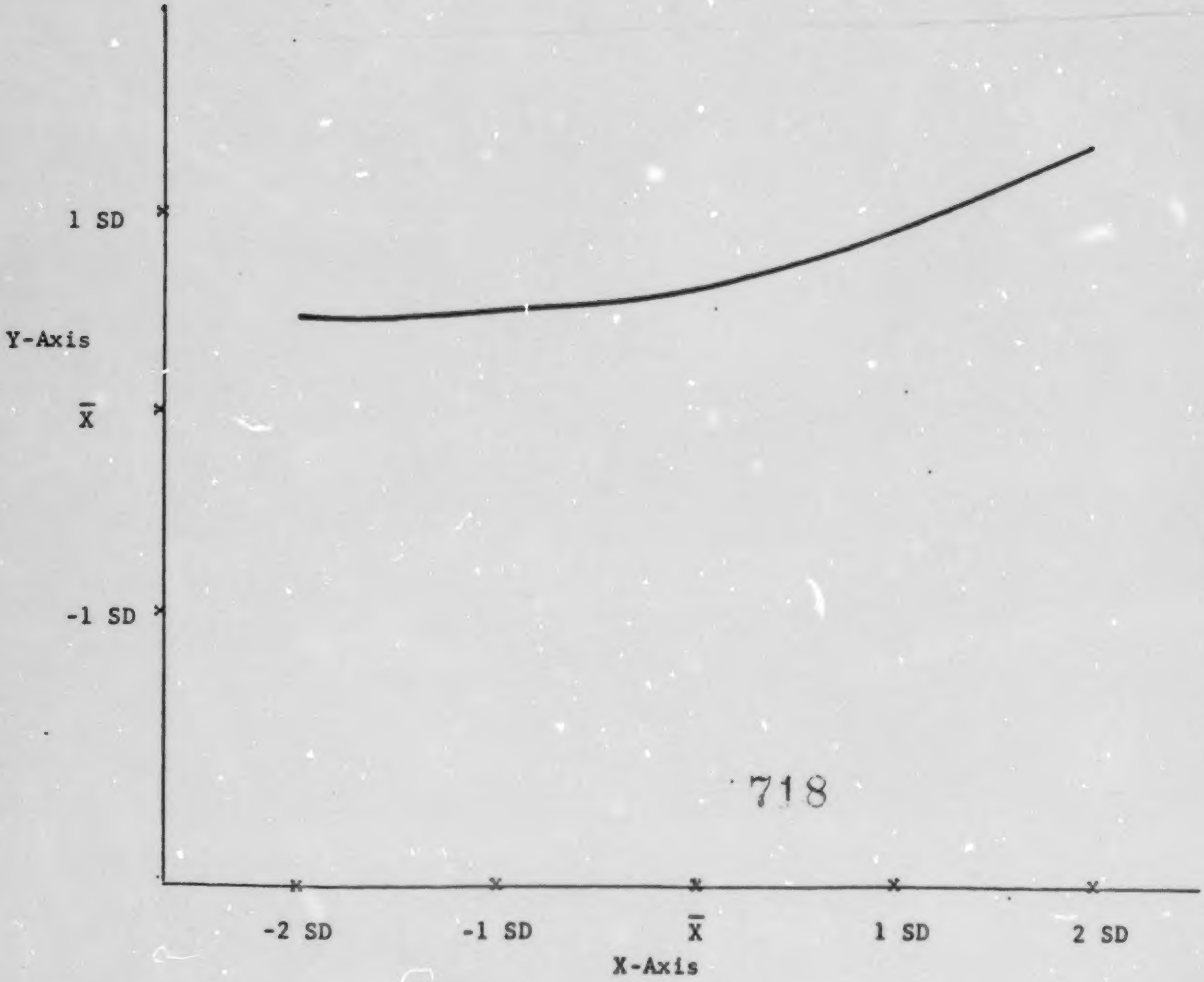


717

GRAPH GATT 5

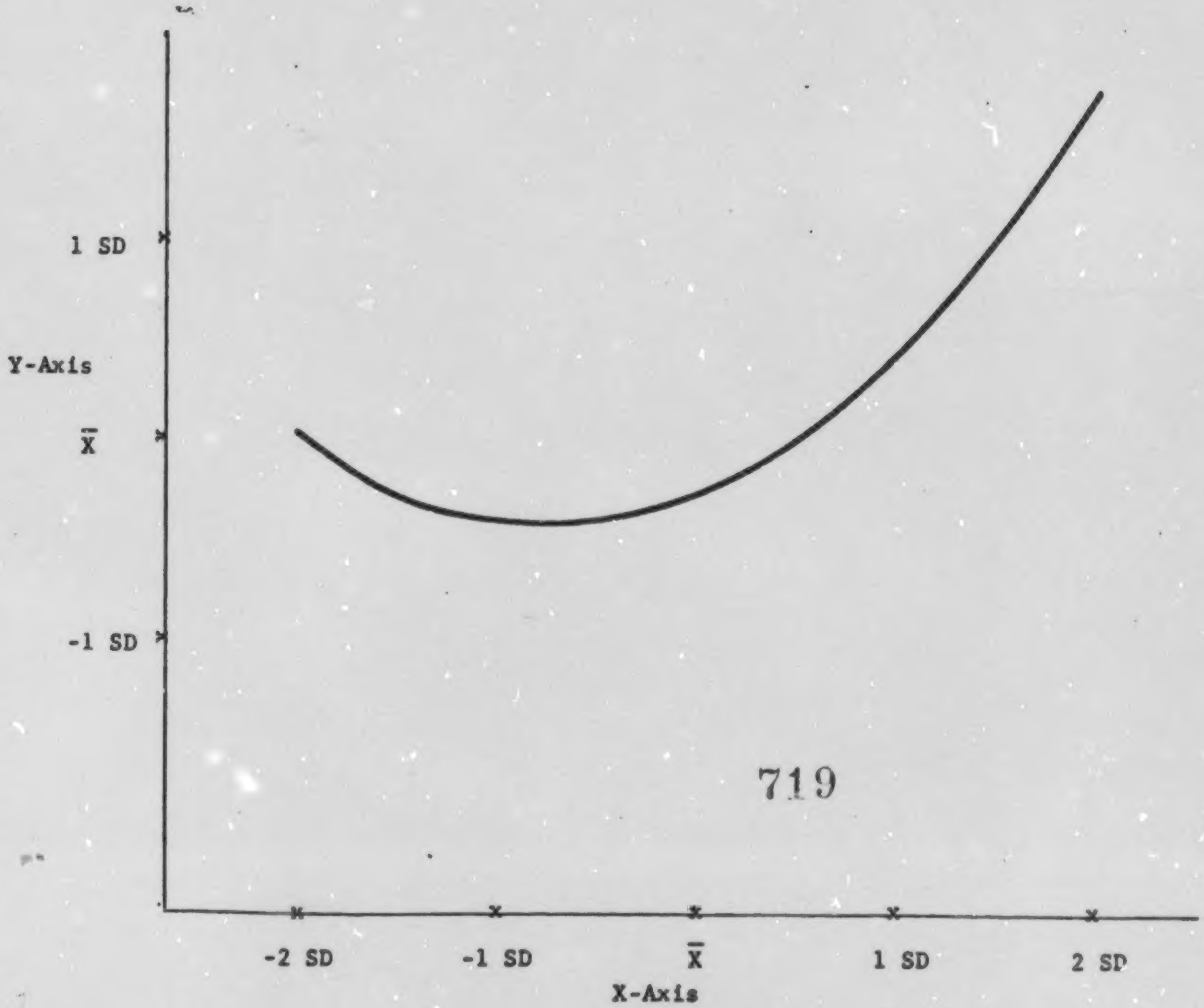
Y-Axis (Criterion) SSC-Att Post. Pre.
X-Axis (Predictor) BRS-SR (cop)
Grouped on

Effect Pupil-L + Q
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled yes



GRAPH GATT 6

Y-Axis (Criterion) SSC-Att Post. Pre.
X-Axis (Predictor) BRS-SR (Cop)
Grouped on
Effect Pupil-Q
Year and site Austin II
Unit of Analysis Between-Class
Pretest controlled yes

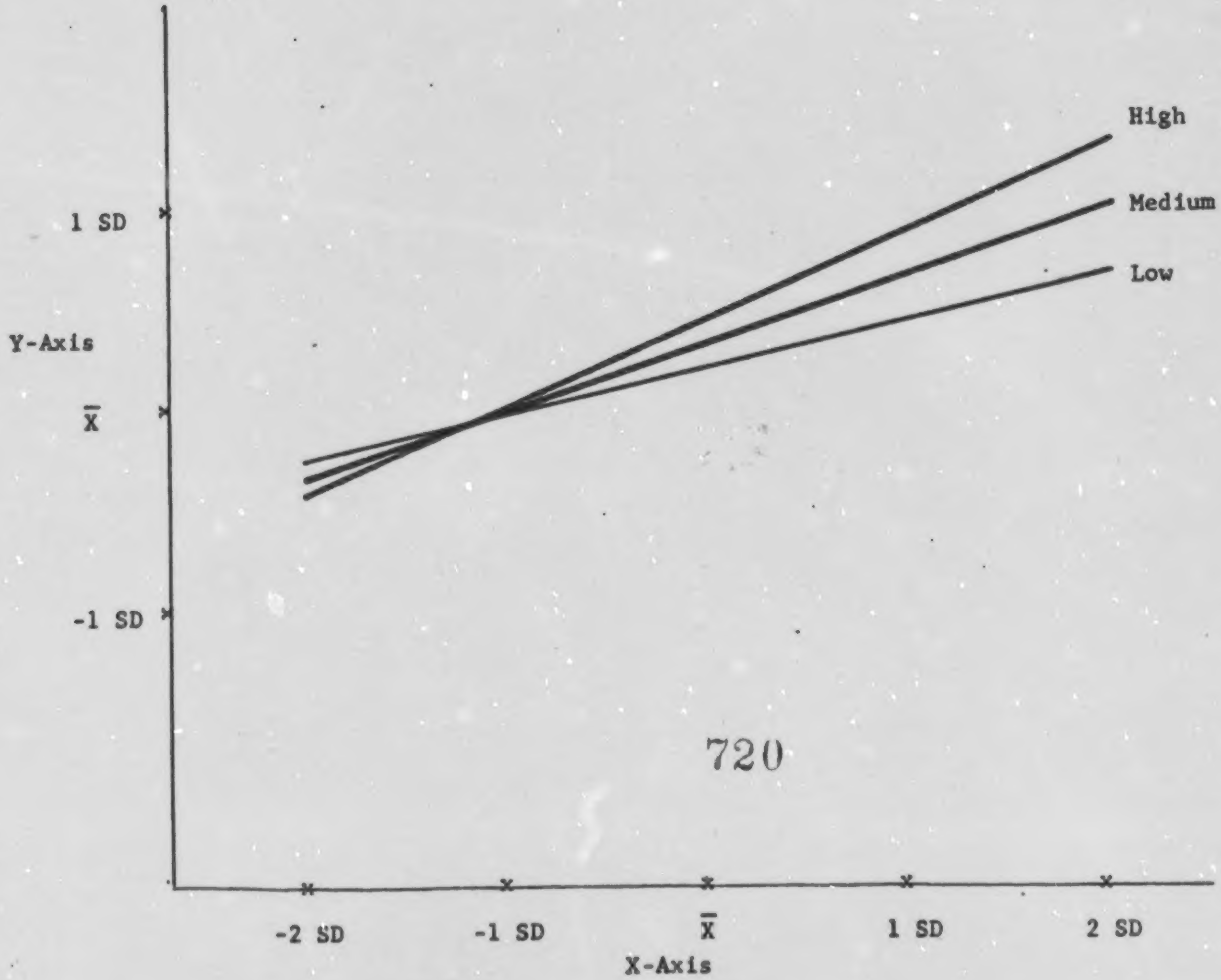


719

GRAPH GATT 7

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on SSC-Cop

Effect Pre-L x Pupil-L
Year and site Kentucky 1
Unit of Analysis Within-Class
Pretest controlled yes

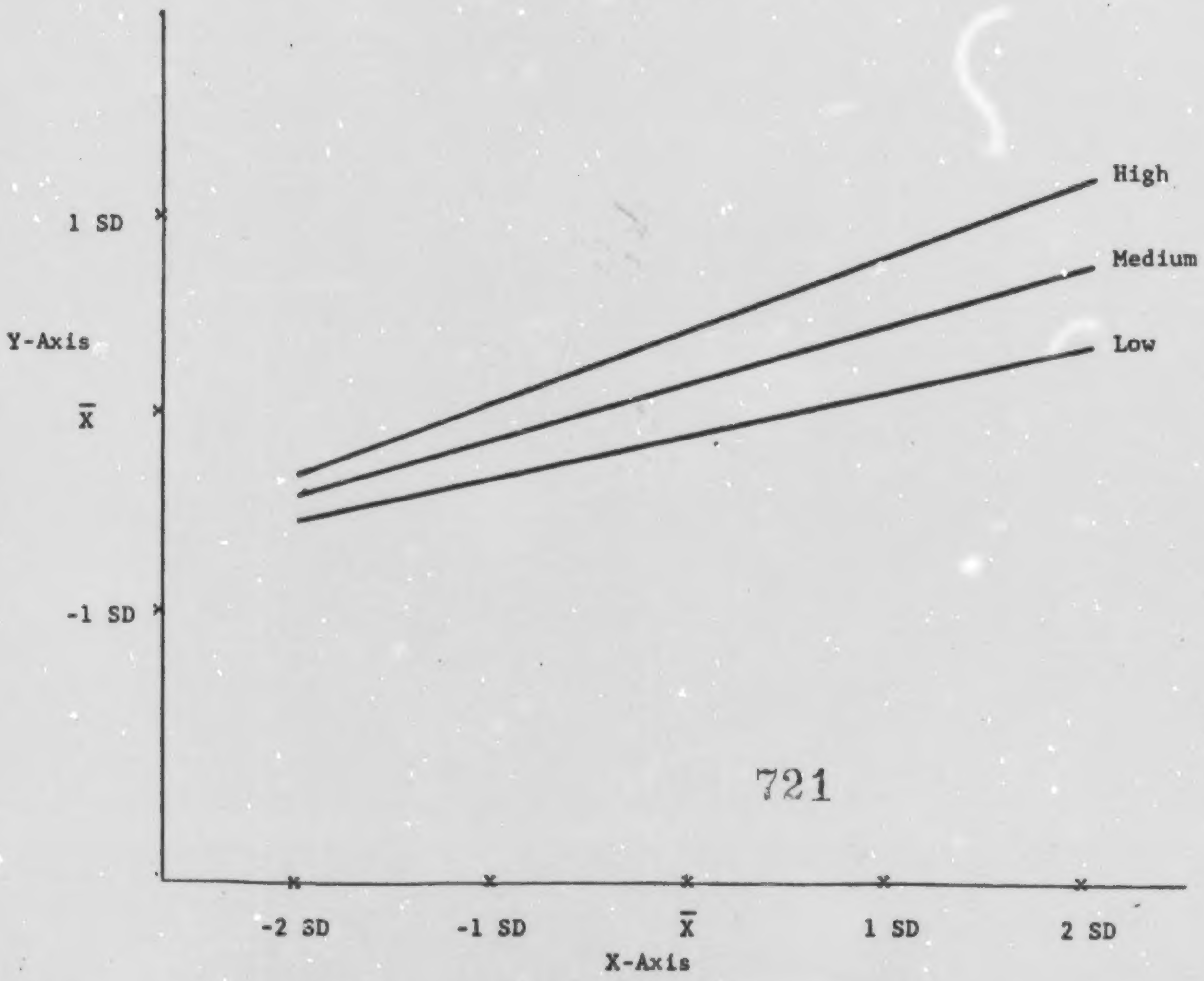


720

GRAPH GATT 8

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on SSI - att

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Within- Class
Pretest controlled yes

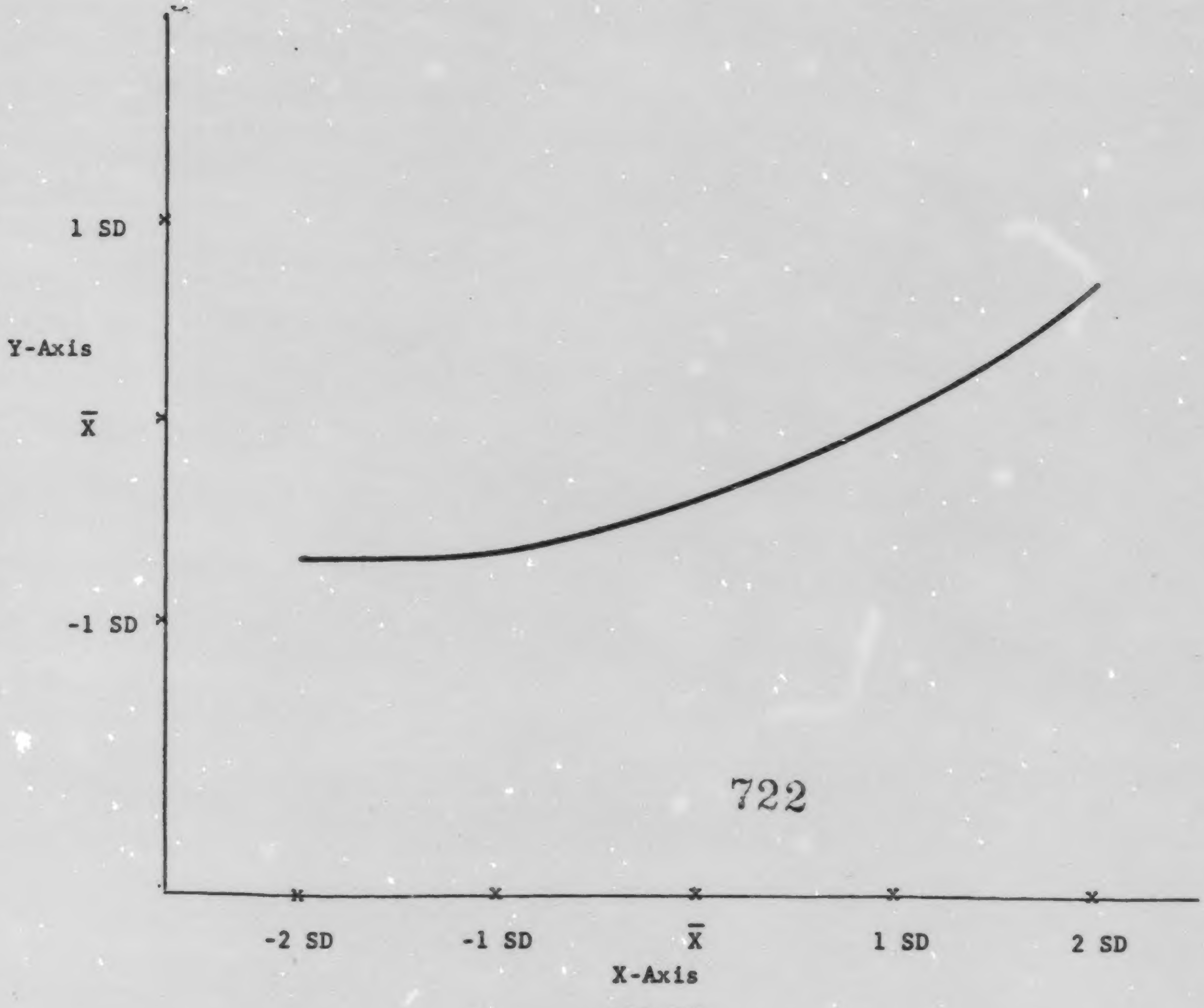


721

GRAPH GATT 9

Y-Axis (Criterion) SSC-Att Post Pre
X-Axis (Predictor) SSI-Att
Grouped on

Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled yes

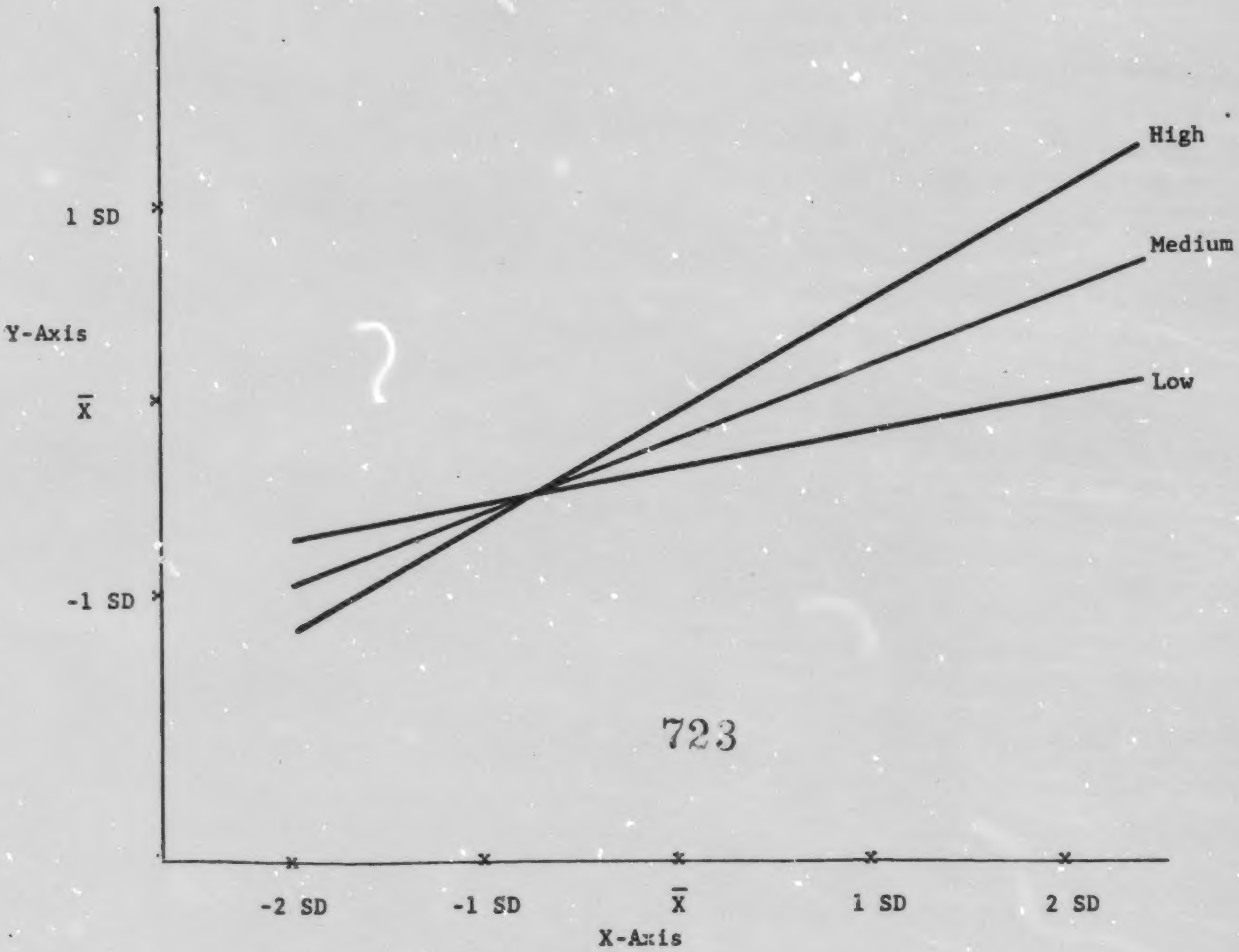


722

GRAPH GATT 10

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on SSI-Att

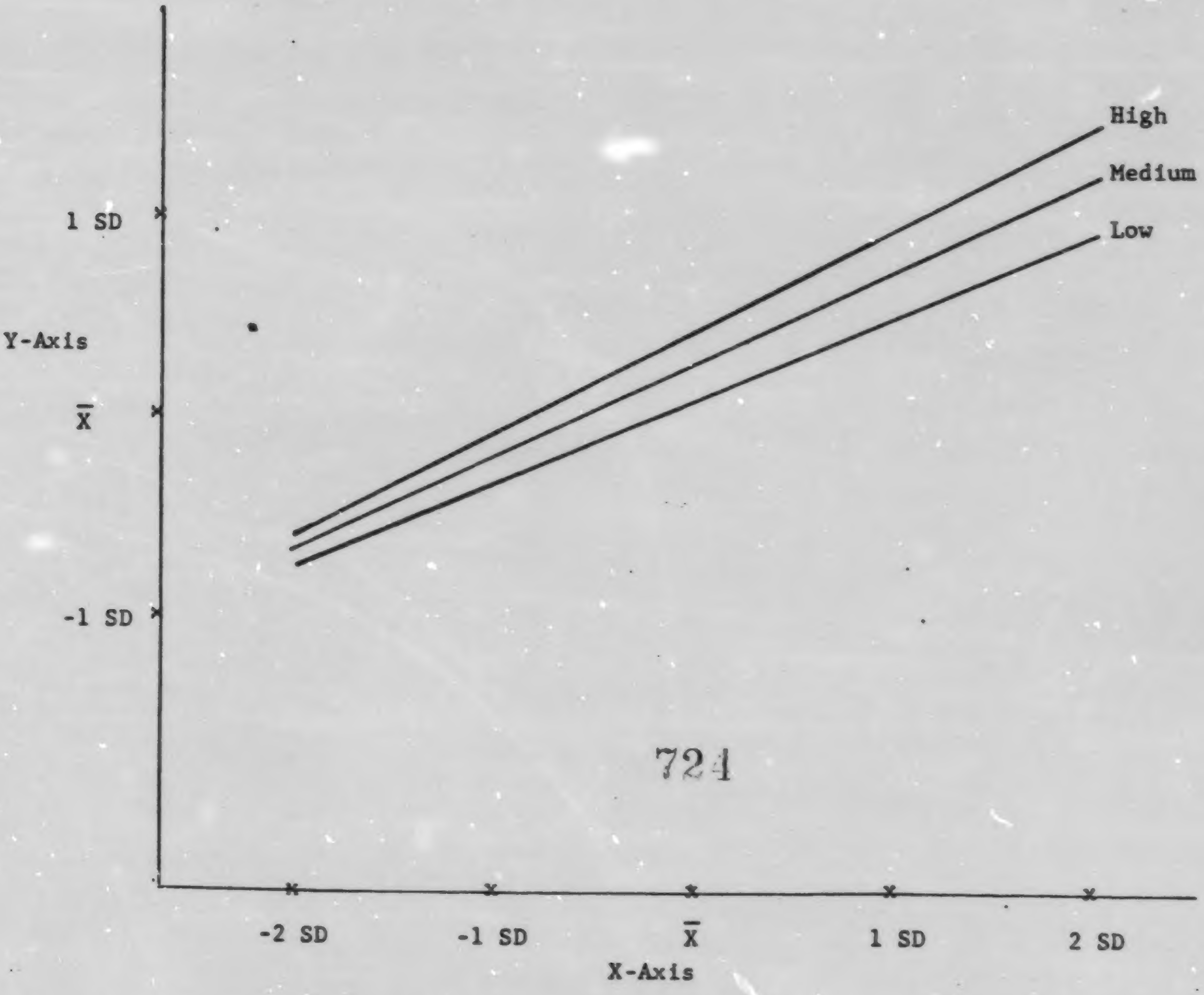
Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH GATT 11

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Self-est (P-H)

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Within-class
Pretest controlled yes



724

GRAPH GATT 12

Y-Axis (Criterion) SSC-Att Post

X-Axis (Predictor) SSC-Att Pre

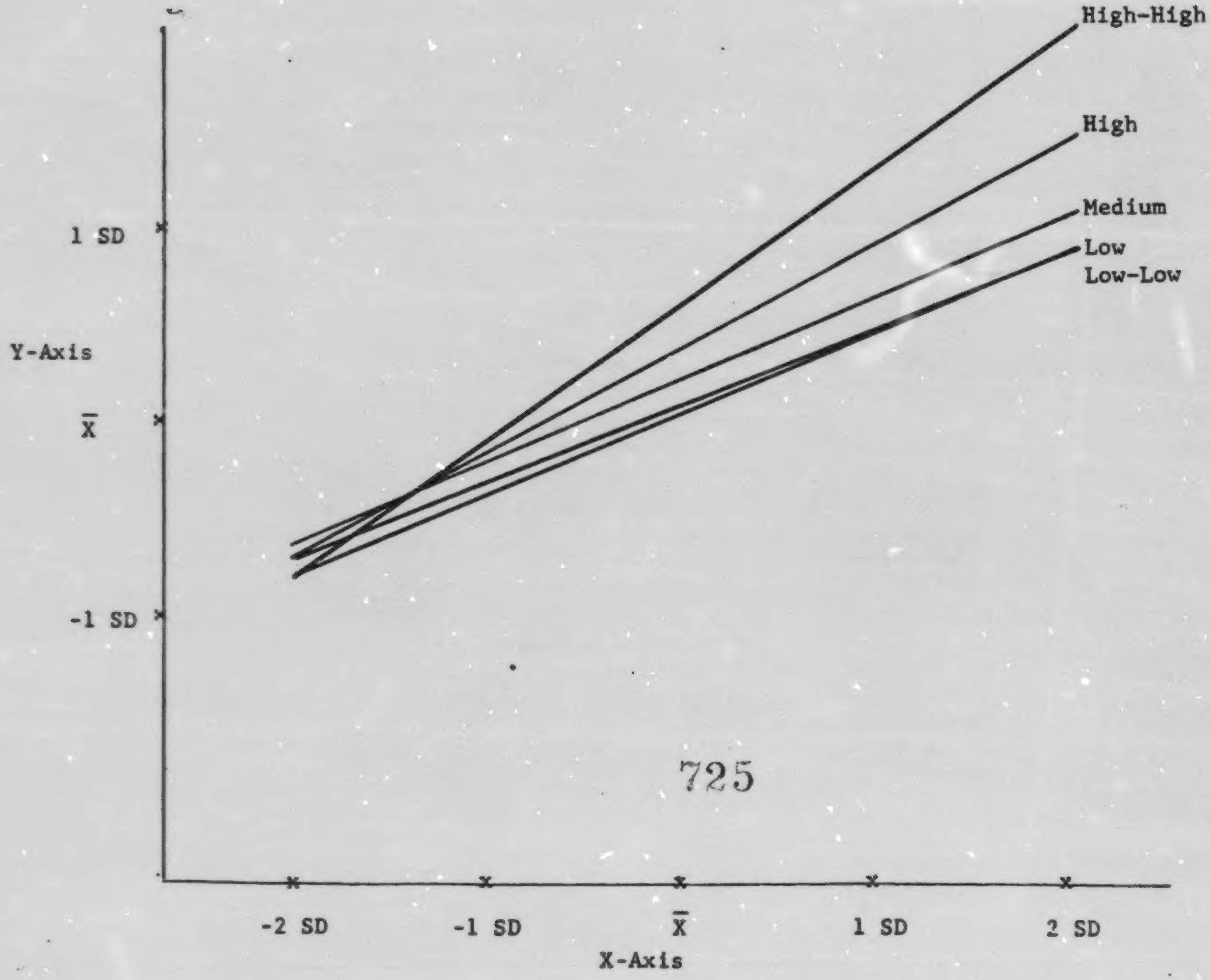
Grouped on Self-Est (P-H)

Effect Pre-L x Pupil-Q

Year and site Austin I

Unit of Analysis Within-Class

Pretest controlled yes

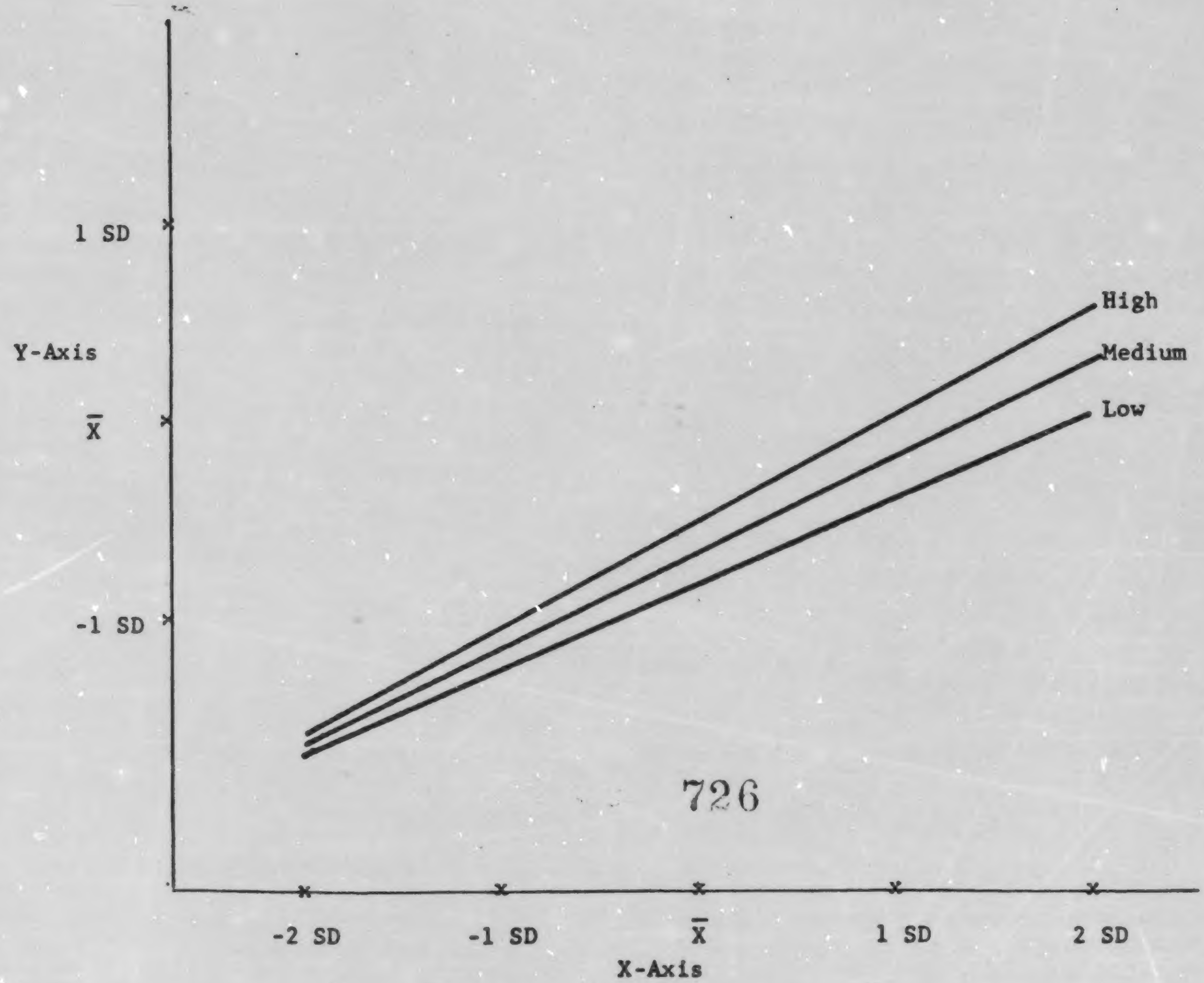


725

GRAPH GATT 13

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Self-Est (SSD)

Effect Pre-L x Pupil-L
Year and site Austin II
Unit of Analysis Within-class
Pretest controlled yes

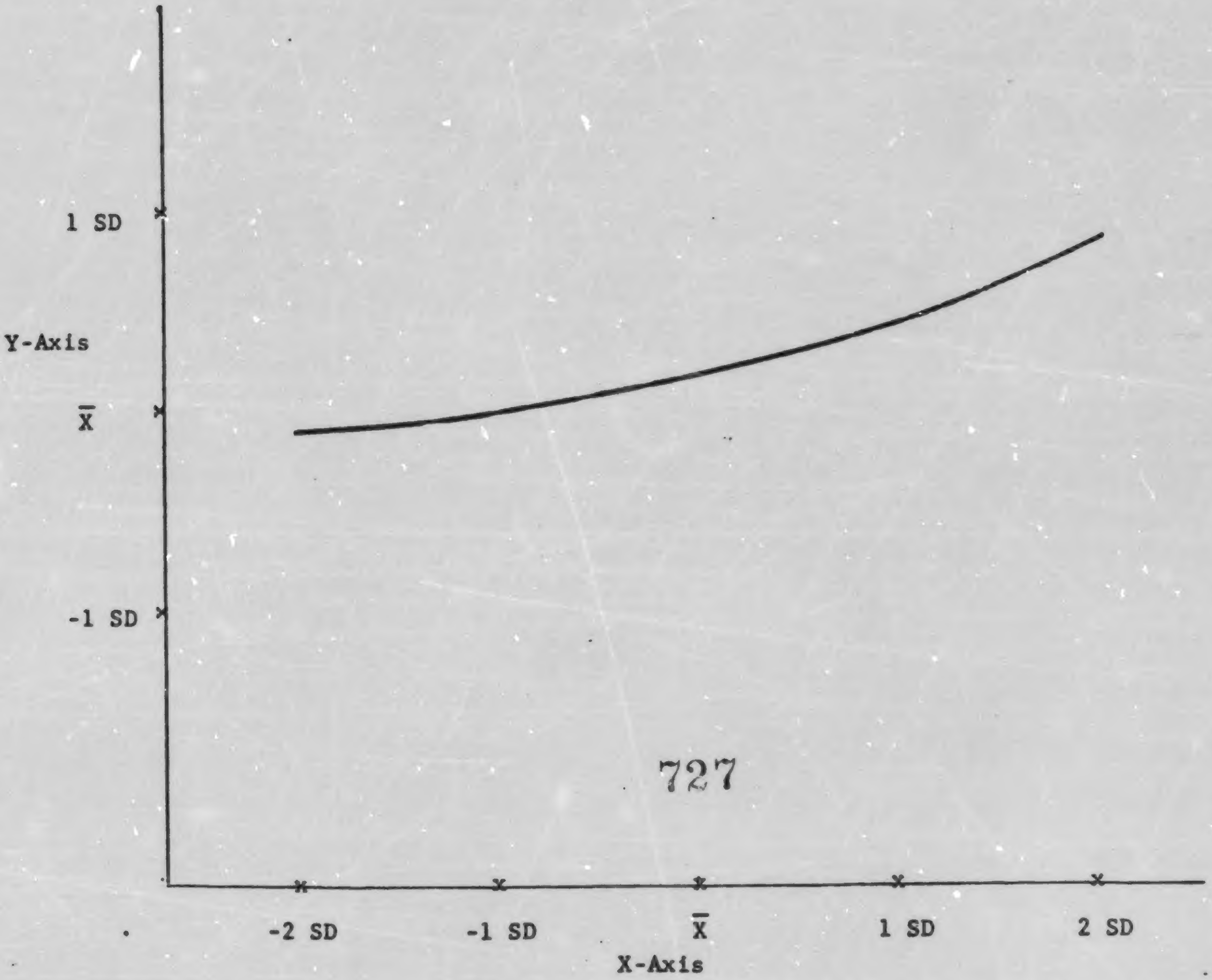


726

GRAPH GATT 14

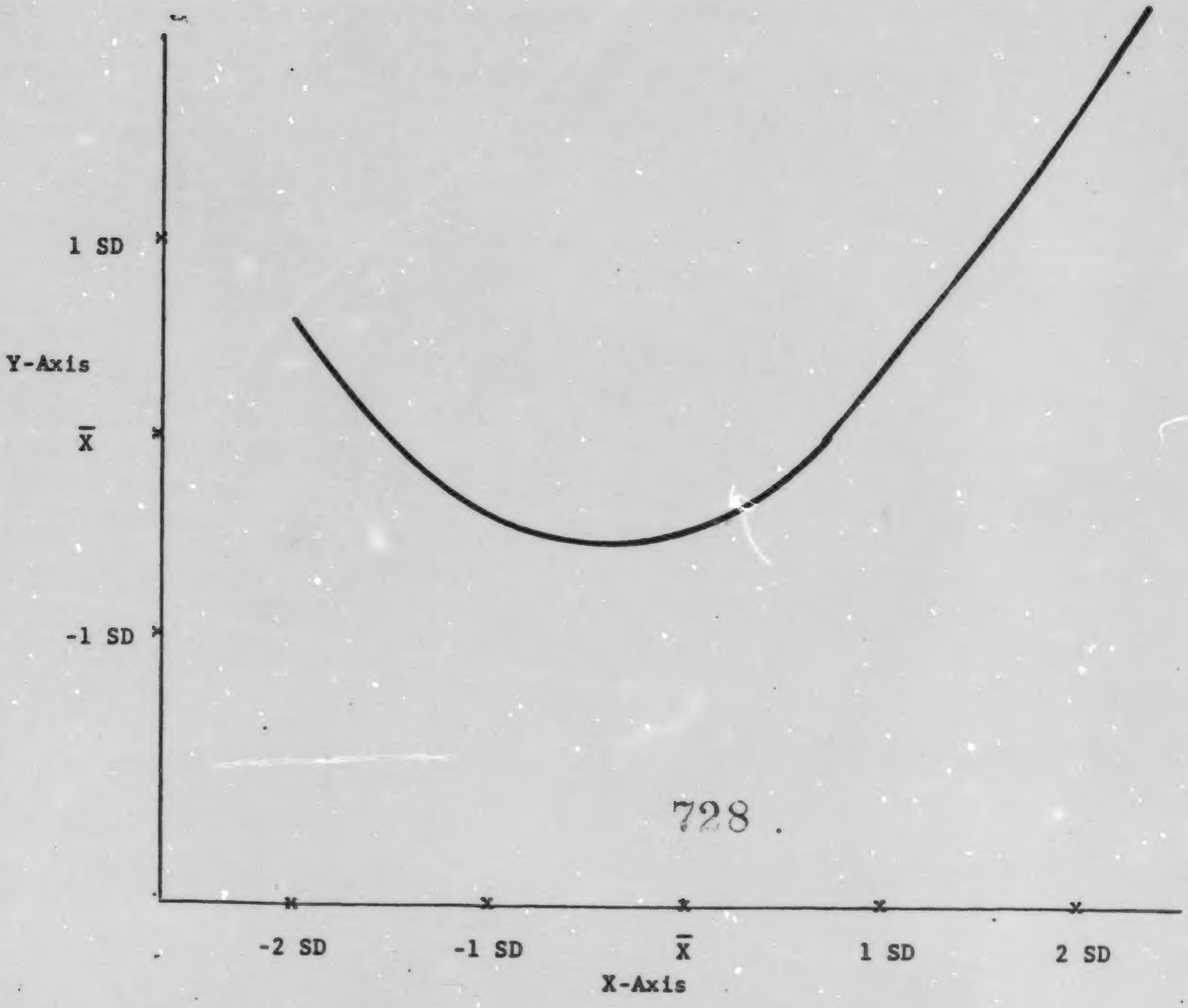
Y-Axis (Criterion) SSC-Att Post/pre
X-Axis (Predictor) Self-Est (P-H)
Grouped on

Effect Pupil-Q
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled yes



GRAPH GATT 15

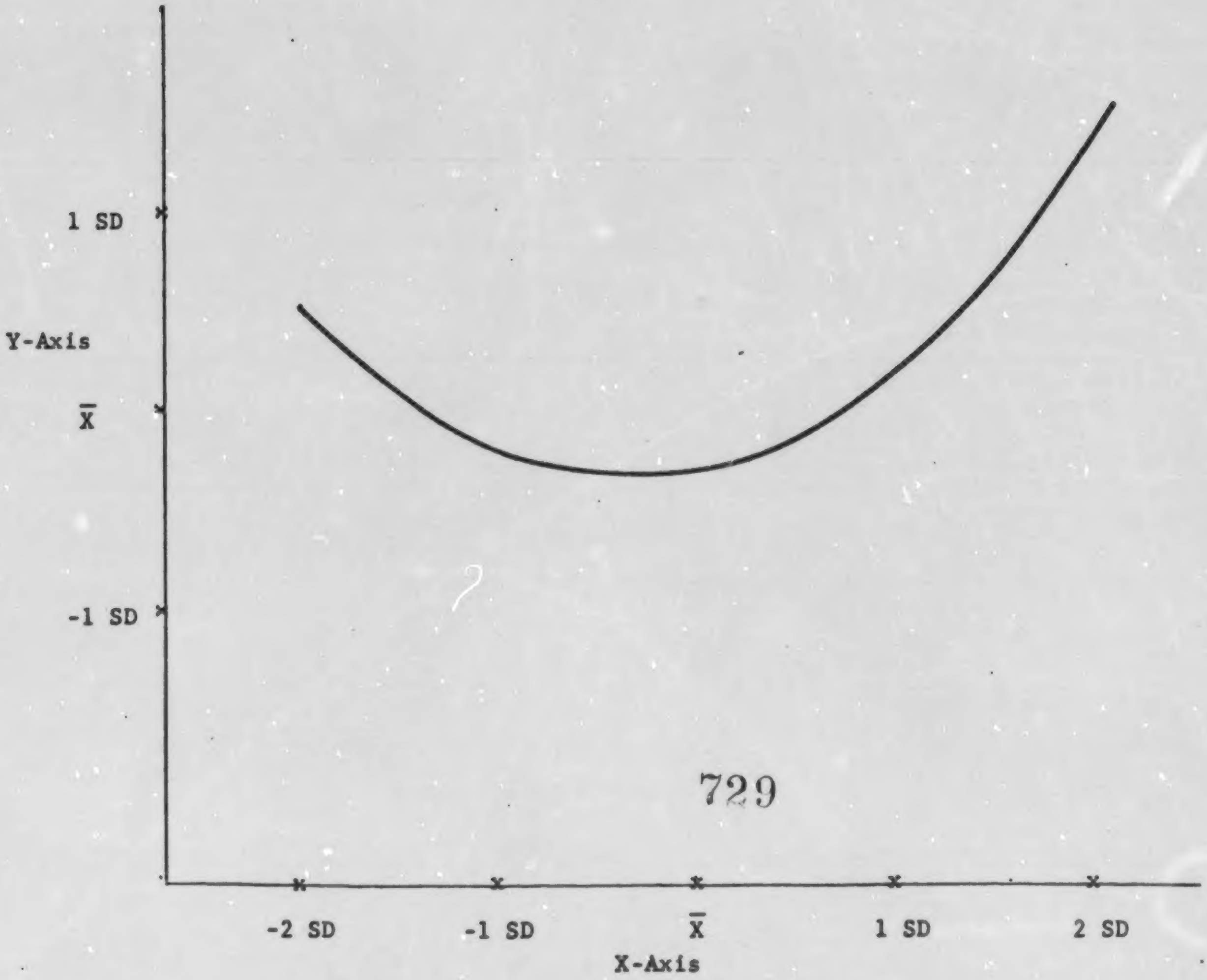
Y-Axis (Criterion) SSC-Att Post Pre
X-Axis (Predictor) Self-Est (P-H)
Grouped on
Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH GATT 16

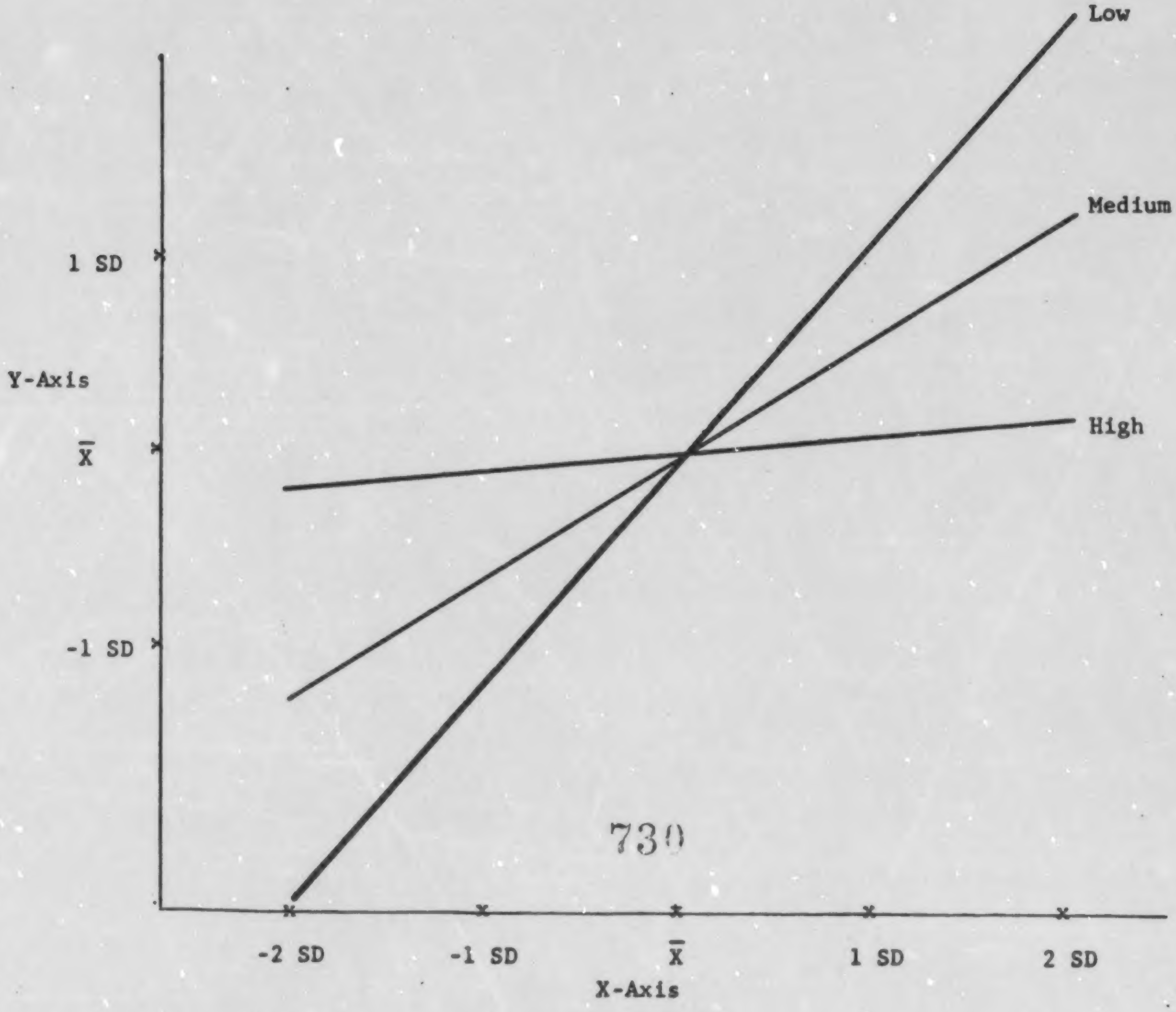
Y-Axis (Criterion) SSC-Att Post Pre
X-Axis (Predictor) TOT
Grouped on

Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH GATT 17

Y-Axis (Criterion)	SSC-Att Post	Effect	Pre-L x Pupil-L
X-Axis (Predictor)	SSC-Att Pre	Year and site	Kentucky
Grouped on	TOT	Unit of Analysis	Between-Class
		Pretest controlled	yes

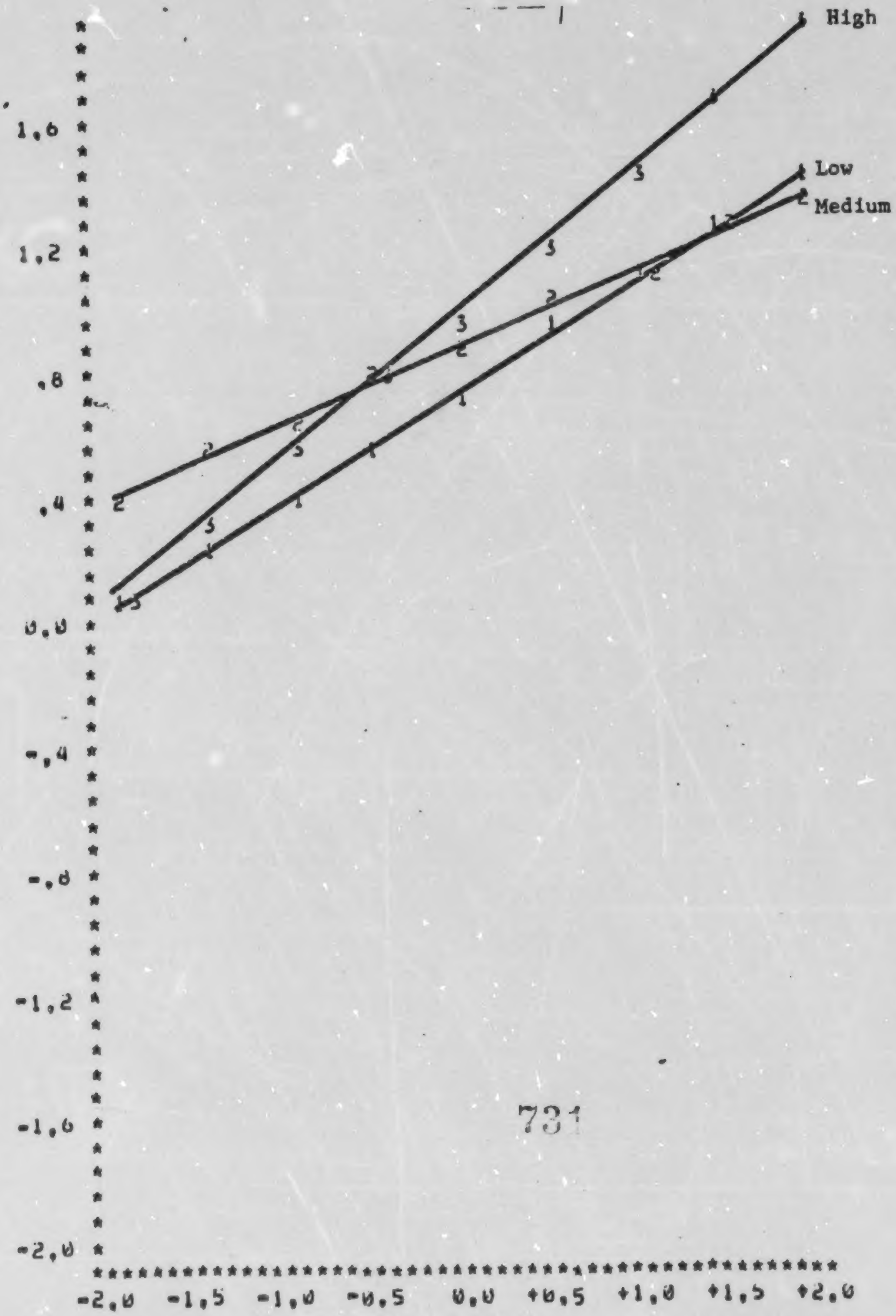


730

GRAPH GATT 18

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Acad Cop

Effect Pre-L x Pupil-Q
Year and site Kentucky
Unit of Analysis Within-class
Pretest controlled yes

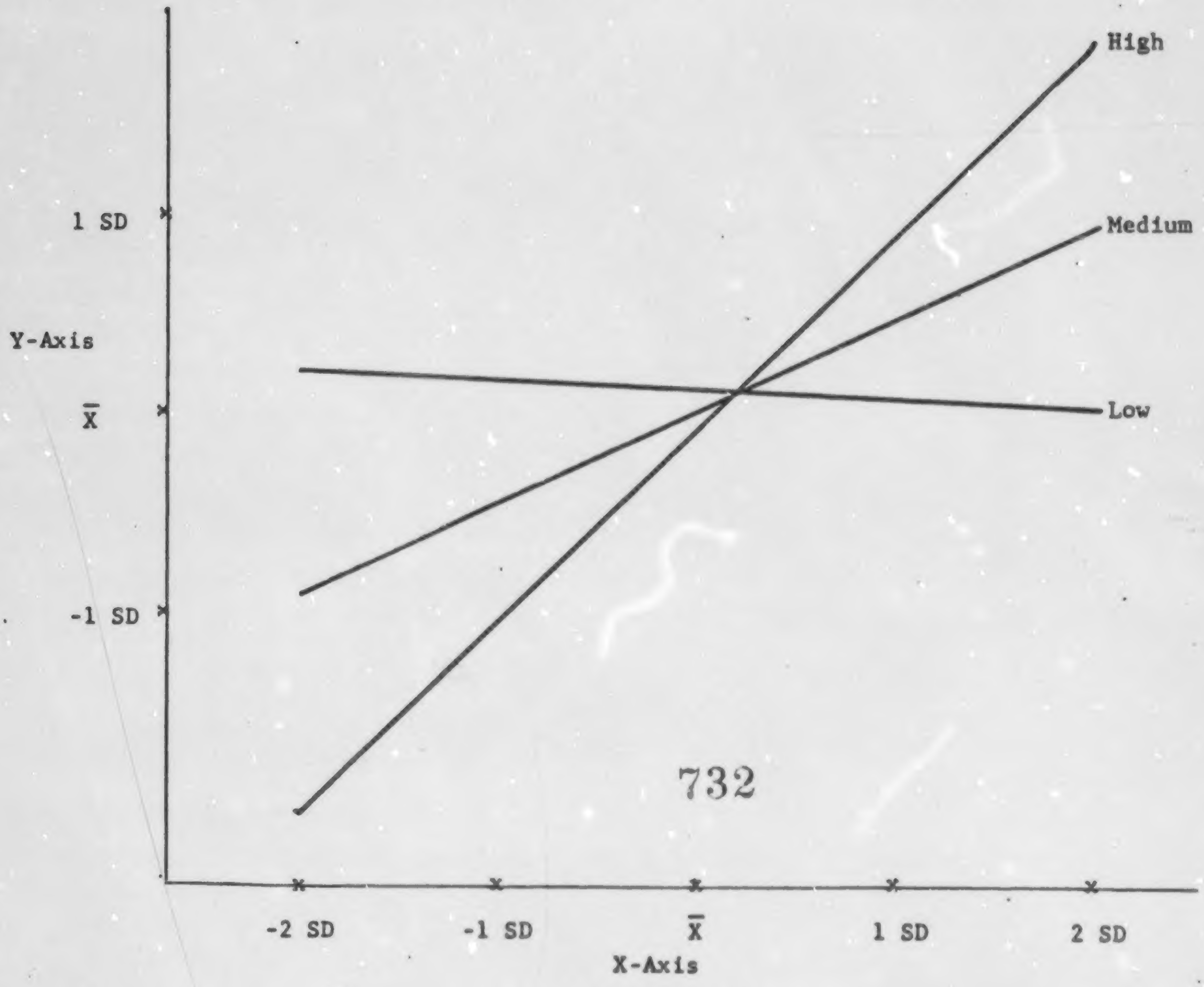


731

GRAPH GATT 19

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Acad Cop

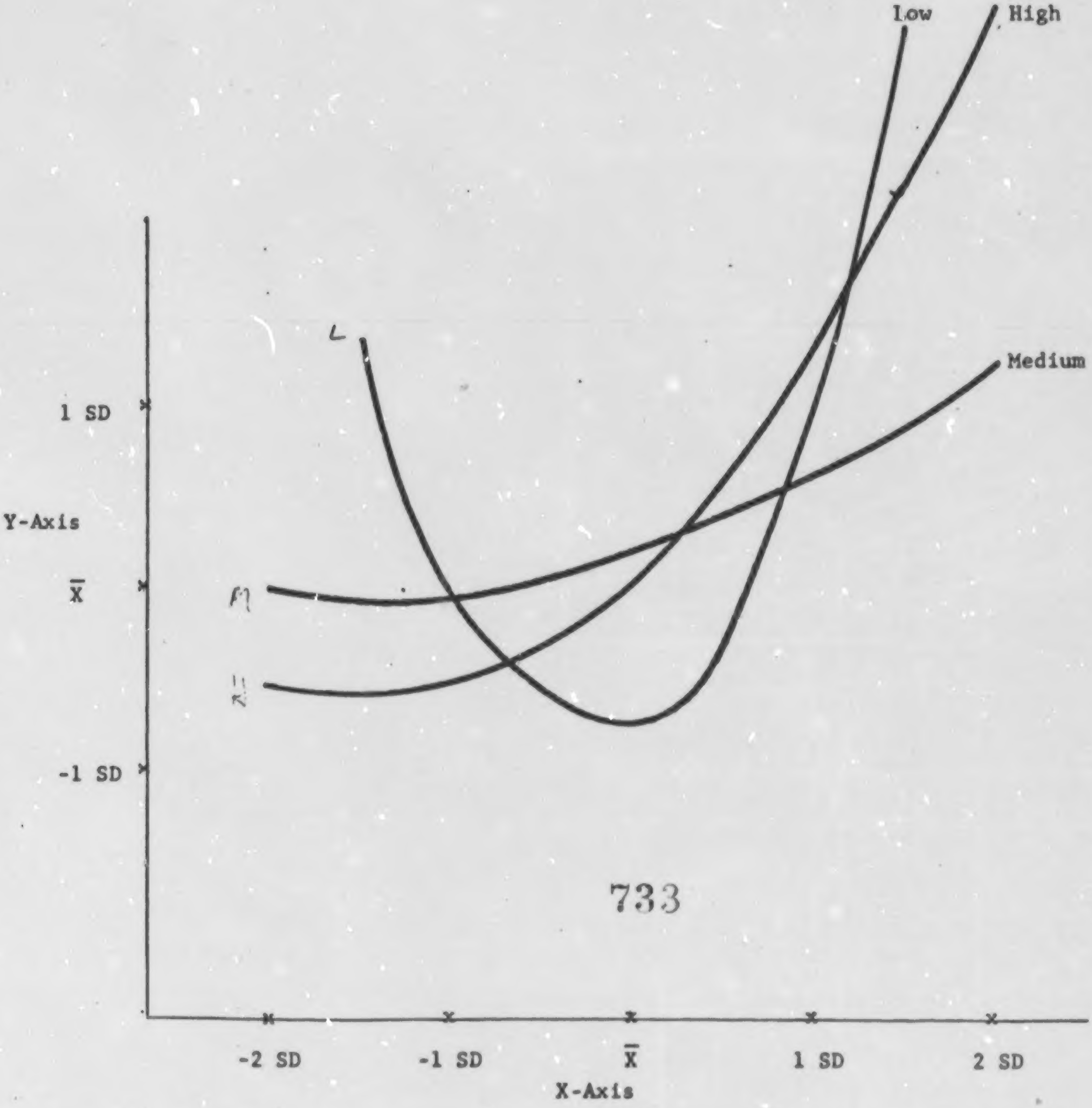
Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH GATT 20

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Acad Cop

Effect Pre-Q x Pupil-Q
Year and site Austin II
Unit of Analysis Between-Class
Pretest controlled yes

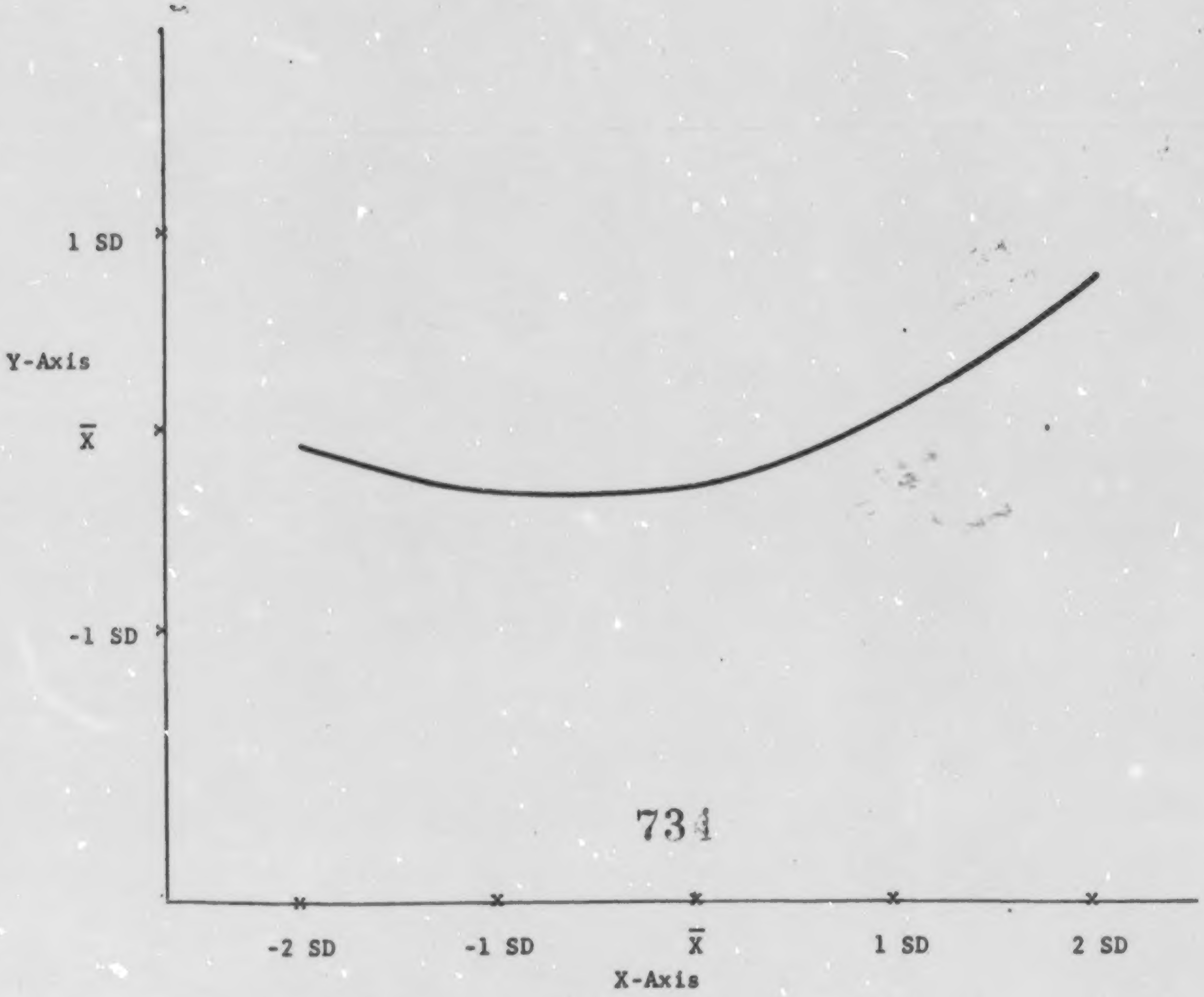


733

GRAPH GATT 21

Y-Axis (Criterion) SSC-Att Post Pre
X-Axis (Predictor) SOC-emo-cop
Grouped on

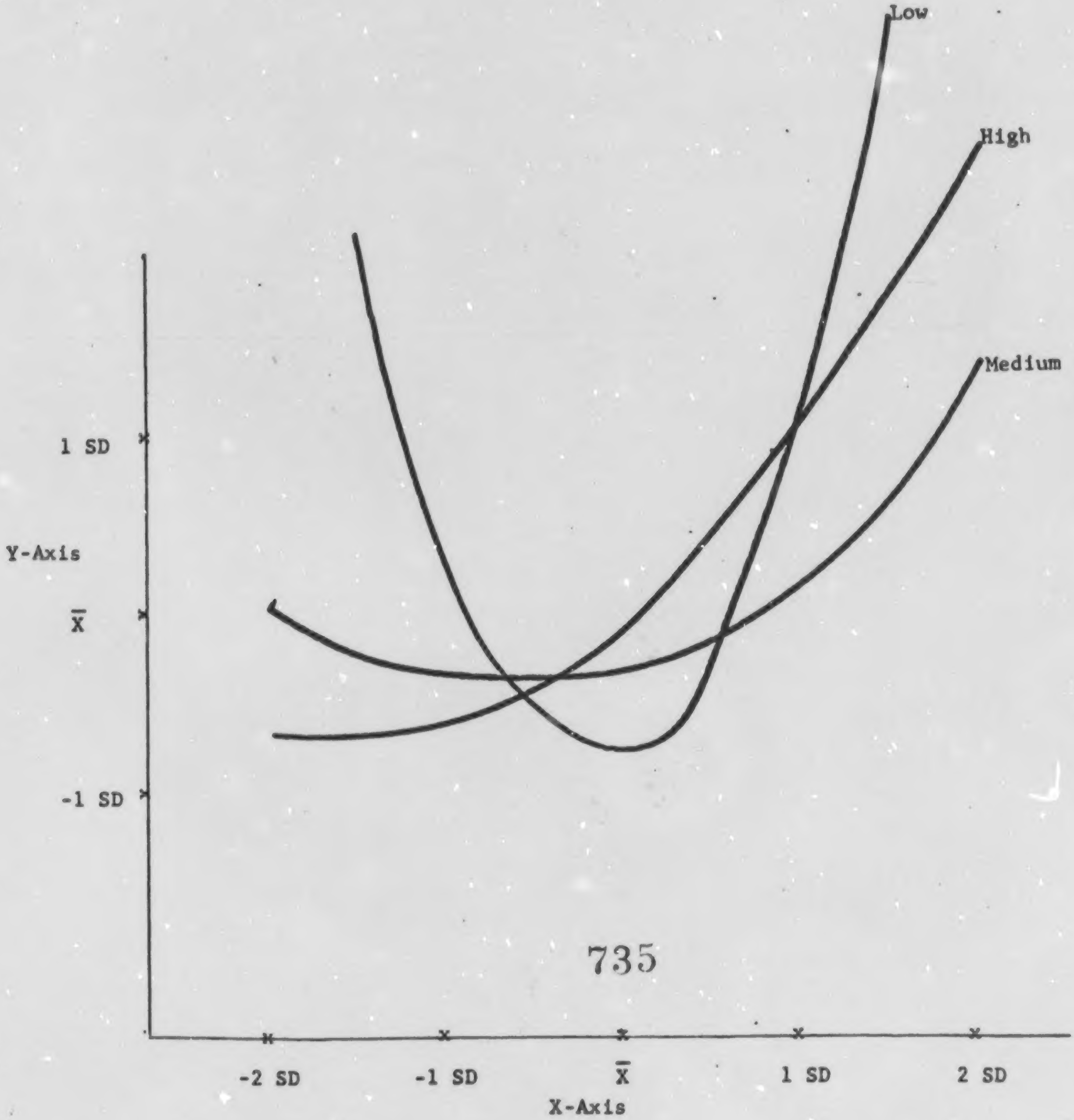
Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled yes



GRAPH GATT 22

Y-Axis (Criterion) SSC-Att Post
X-Axis (Predictor) SSC-Att Pre
Grouped on Soc-emo-cop

Effect Pre-Q x Pupil-Q
Year and site Austin II
Unit of Analysis Austin II
Pretest controlled yes



Learning Outcome: Self-Esteem
as Measured by the Piers-Harris Self-Concept
and the Student Self Disclosure
(Modified Version of the P-H used in Austin II)

The Relationship between Initial Attitude toward School and Other Student Characteristics at the Beginning of the Year

As expected, students' attitudes toward school at the beginning of the year correlated with a number of other coping and attitudinal measures (Table SA 1). In Austin I, students with more positive attitudes toward school had higher self-esteem (P-H = .39), a better general attitude (SSC-A, r=.53), and higher self-reported coping skill (SSC-C, r=.45; BRS-SR, r=.33). In addition, these students were rated higher in coping by their peers (BRS-OR, r=.20), and there was a significant though very small correlation with achievement (r=.08). A similar pattern of correlations was found in Austin II and Kentucky. In Austin II, the correlation coefficients were: .56 with general attitude (SSC-A), .48 with self-concept (SSD), .52 and .28 with two separate measures of self-reported coping skill (SSC-C, BRS-SR), .21 with peer-rated coping skill (BRS-OR), and .18 with achievement. In Kentucky, SSI correlated .39 with self-esteem (P-H), .50 with general attitude (SSC-A), .37 with self-reported coping on the Sentence Completion, .20 with self-reported coping on the Behavior Rating Scale, .29 with peer-rated coping (BRS-OR), and .12 with achievement (CTBS). All of these coefficients were significant at p .001.

Since this pattern was replicated in all three TLI samples, there is strong evidence that students' attitudes toward school have the predicted, positive relationships to positive attitudes and coping skills. Students who have a favorable attitude toward school think well of themselves, their coping abilities, and life in general. They are rated as good copers by their peers. This pattern is scarcely linked at all to test achievement. Since the self-report measures are modestly but systematically confirmed by the peer ratings, the evidence suggests that attitudes toward school are influenced by many experiences, not just by the students' objective achievement. Viewed from another angle, it can be said that students' attitudes about school are not biased by their level of achivement test scores, just as they are not biased by their SES or ethnicity (See Chaper III).

The Effects of Student Characteristics on Regressed Change in Attitude Toward School

The effects of initial student characteristics on regressed change in attitude toward school are presented in Table SA 2.

The Effects of Achievement on Attitude: School

Achievement showed a positive relationship to attitude change in the between-class analysis (CTBS, p .01, 8.18% V) and a less visible relationship in the within-class analysis (CTBS, p .001, .61% V), but only in Austin Year I. In general, the higher the academic performance, the more positive the attitude toward school. It appears, however, that attitude toward school is more affected by variables other than academic performance.

The Effects of Coping Skill on Regressed Change in Attitude: School

Self-Rated and Peer-Rated Coping. Self-rated academic coping had a positive, linear influence on attitude toward school in Austin II (within analysis, p .001, .68% V) and Kentucky (within analysis, p .001, 1.10% V; between-class analysis, p .05, 8.83% V). The higher the self-perceived academic coping skills, the more positive students' attitude toward school became. In the between-class analysis of Austin I, self-rated (BRS-SR) and peer-rated (BRS-OR) coping both interacted with pre-test attitudes to affect attitude change (BRS-SR x SSI pre, p .05, 5.05% V; BRS-OR x SSI pre, p .01, 8.93% V). Graph SA 1 and SA 2 show that the pattern is the same in both cases. For classes beginning with good attitudes, better coping skills lead to more positive attitude change. For classes beginning with relatively negative attitudes, skills made little difference. At the negative extreme, (though this was a negligible effect due to the very small number of classes with such low scores), there was even a negative relationship between coping skills and attitude improvement. In general, a positive, interactive cycle between coping skills and attitudes toward school appears to exist, for those classes where students have relatively good attitudes early in the year. In classes with poor initial attitudes, however, students' actual coping skills did not have this positive effect.

The within-class analysis of Austin I yielded a positive, linear relationship between peer-rated academic coping and attitude toward school (p .001, 1.40% V). In Kentucky, the between-class analysis also yielded a strong positive, linear relationship (p .01, 15.35%

V). The greater the academic coping skill, the more positive became the classes' attitude toward school. In the Kentucky sample, peer-rating academic coping (BRS-OR) also showed a significant interaction with the SSI pre-test (p .05, .43% V). Graph SA 3 shows that coping ability facilitated more positive attitude for students low in initial attitude, but was negatively associated with attitude improvement for students high on the SSI pre-test. This was, however, a small effect, involving very few students.

Self-Rated General Coping. Self-perceived general coping ability was also found to influence attitude toward school. A positive linear relationship was found between these two variables as a result of the within-class analysis in Austin I (p .001, 1.15% V) and Austin II (p .0001, 1.07% V). Between-class analysis in Austin II also yielded a strong interaction effect (p .05, 10.44% V) between self-reported coping ability (SSC-C) and SSI pre-test in predicting regressed gain in attitude toward school. This finding is illustrated in Graph SA 4. Classes with relatively low beginning attitudes showed more positive gain if they rated themselves low in coping. Classes beginning with more positive attitudes become even more positive, the higher they rated themselves in coping ability. Confidence in coping apparently was good for attitude toward school, but only for those classes who already had relatively good attitudes. Self-reported coping (SSC-C), however, showed a significant quadratic interaction with the SSI pre-test (p .05, .30% V) in the within-class analysis in Austin II. Graph SA 5 shows that, as in the between-class interaction above, the relationship between coping and attitude improvement was strongest for those students who already had a relatively good attitude at the beginning of the year. Except for the Austin II classes with poor initial attitudes, these results indicate a positive, reciprocal effect between coping skill and attitude toward school.

The Effects of Attitude toward Life and Self-Esteem on Regressed Change in Attitude toward School

Students' attitude toward life had a positive, linear effect on change in attitude toward school in the within-class analysis of Austin I (p .001, 1.16% V) and Austin II (p .0001, 1.97% V). These results are presented in Table SA 2. The more positive the students' attitude toward life, the more positive their attitude toward school became, over the year.

Within-class analysis also yielded a positive, linear relationship between self-esteem and attitude toward school in Austin I (p .001, 1.64% V) and Kentucky (p .001, .82% V). The more positive the students felt about themselves, the more positive became their attitude toward school. While self-esteem held a direct linear relationship with attitude gain in Austin 1 and Kentucky, the effect was more complex in Austin II, as self-esteem (SSD) interacted with the attitude pre-test level (p .05, .39% V). As illustrated in Graph SA 6, the positive relationship held for those who began with relatively good attitudes; however, students with high self-esteem who initially had a poor attitude grew slightly more negative in attitude, perhaps as a way of defending their negativistic stance. This was evident in only a small number of cases, however.

The Effects of Classroom Behavior on Regressed Change in Attitude toward School

Effects of Time on Task. In Austin II, the within-class analysis yielded a positive, linear relationship (p .02, 1.16% V) between time-on-task and gain in attitude toward school. The more time students spent on tasks, the more positive became their attitude towards school (see Table SA 3).

Time-on-task (TOT) interacted with the SSI pre-test in the within-class analysis of Austin I (p .02, .86% V). This interaction effect, illustrated in Graph SA 7, indicates that students beginning with average or above average attitude toward school improved their attitude if they spent more time on task. These students also had greater gain in attitudes than those students beginning with poor attitudes. Those few students who began the year with extremely poor attitudes, however, showed more improvement in attitude if they spent less time on task. In general, though, students with even moderately positive attitudes improved their attitude more, the more they concentrated on their work in class.

The results of the between-class analysis in Kentucky yielded a similar, even stronger interaction effect (p .01, 15.65% V) between TOT and SSI pre-test. This finding is illustrated in Graph SA 8. Classes which began the year with poor attitude toward school improved their attitude more if they spent relatively little time-on-task. On the other hand, classes that began with relatively good attitudes maintained them much better if they spent more time-on-task. Overall, average or low time-on-task had a strong tendency to reverse initial attitudes toward school.

The Effects of Academic Coping. The results of the within-class analysis yielded a positive, linear relationship between observed academic coping and improvement in attitude toward school in Austin I (p .001, 4.84% V) and Austin II (p .0003, 2.87% V). The higher the students' observed academic coping skills, the more positive was their gain in attitude toward school.

The results of the between-class analysis yielded interaction effects in both Austin II and Kentucky. In Austin II, there was a curvilinear interaction effect between initial attitude toward school and academic coping in the prediction of regressed gain in attitude (p .03, 8.78% V). This effect is illustrated in Graph SA 9. Classes with a negative initial attitude improved their attitude markedly if they were seen as effective copers. Classes which had positive initial attitudes tended to remain positive; but, curiously, the classes rated low in coping skill grew even more positive in attitude than classes rated high in coping skill. This between-class effect ran partially counter to the within-class effect in Austin II: within classes, individual coping skill had a positive, linear effect on attitude gain; when classes were viewed as units, however, this relationship was true only for classes that started out with relatively poor attitudes.

In Kentucky, the between-class analysis showed that teacher rating of academic coping strongly interacted with the SSI pre-test in both a linear (p .01, 17.76% V) and a quadratic fashion (p .05, 12.2% V). Graph SA 10 depicts the linear interaction. As in Austin II, academic coping was positively associated with attitude improvement for classes low in initial attitude, but was negatively associated with attitude improvement for classes high in initial attitude. Graph SA 11, shows that the negative relationship for classes high in initial attitude was especially powerful. Classes which began the year with a good attitude toward school maintained better attitudes if their teacher rated them low in coping. Classes rated high in coping skill, on the other hand, became very negative in their attitudes, by the end of the year.

The Effects of Social-Emotional Coping. The results of the within-class analysis yielded a positive, linear relationship between social-emotional coping and regressed gain in attitude toward school in Austin I (p .0001, 3.97% V) and Austin II (p .0002, 2.93% V). In Austin II, there was also a positive, linear effect in the between-class analysis (p .006, 13.4% V). This pattern is slightly qualified by a within-class interaction effect in Austin II. As Graph SA 13 shows, good copers had better final attitudes than poor copers, whatever their initial attitude. Medium copers gained less if they had poor initial attitudes; more, if they had positive initial attitudes. To put it another way, students with poor initial attitudes gained appreciably more if they were good copers. Those with average or high initial attitude gained most if they were either medium or high copers. In effect, this largely reinforces the linear relationship between coping skill and improvement in attitude, in Austin I and II. A very positive, interactive cycle seems to have existed between these students' active coping efforts, teachers' positive reactions, and the students' subsequent attitude.

This statement must be qualified somewhat, however, by the existence of significant (between-class) interactions between attitude (SSI) pre-test and social-emotional coping (Austin I, p .01, 1.15% V). Graph SA 12 indicates that degree of social-emotional coping primarily influenced attitude change for those classes that already had a relatively good attitude on the pre-test. It made little difference for classes that began school with a poor attitude.

The pattern was quite different in Kentucky. Social-emotional coping interacted strongly with the SSI pre-test (p .01, 19.24% V) in the between-class analysis of Kentucky. Graph SA 14 shows that coping facilitated attitude improvement for classes beginning with relatively poor attitudes, but was negatively associated with attitude change for those classes beginning the year with a good attitude. A further quadratic effect of social-emotional coping (p .05, 11.79% V), Graph SA 15 emphasizes the fact that a high degree of social-emotional coping had a negative effect on class attitude change. There were no significant effects from the within-class analyses of the Kentucky data.

A different dynamic seems to have been at work in Kentucky than in Austin, particularly when classes were compared as units. In Austin, coping skill facilitated a positive attitude toward school, whether classes were compared, as units, or students were compared within classes. In Kentucky, this pattern obtained for classes that began the year with below-average attitudes toward school; but coping skill actually had a negative effect on attitude change in classes that began with a positive attitude. These effects look much too different to be attributable to measurement error, or any other random variation. Whatever the causes, these results make it clear that situational circumstances (whose nature requires further inquiry) can create very different patterns of relationship between coping skill and attitude toward school, in different sites. In no present sample are these variables unrelated; but some situational differences reversed the direction of the relationship, in the two sites.

Effects of Work-Oriented Behavior: COR-Pupil

The results of the between-class analysis of Austin I yielded a positive, linear relationship (p .03, 5.22% V) between COR-pupil and regressed change in attitude towards school. The more orderly and work-minded the class, the more positive their attitude became by the end of the year. There was also a quadratic interaction effect between initial attitude and COR-pupil (p .004, 7.3% V). (These data are not yet analyzed for Austin II or Kentucky.)

SSI Criterion: Summary of Replications

In all three samples, students' attitudes toward school were consistently enmeshed in an array of positive characteristics. These included attitudes toward self and toward life in general, as well as various kinds of coping skills.

Self-rated academic coping skill (BRS-SR) facilitated a positive attitude toward school for all students in Austin II and Kentucky; and for classes with good initial attitudes in Austin I. Peer-rated coping skill similarly facilitated positive attitude change in Austin I and Kentucky, though not in Austin II. Self-reported general coping skill facilitated positive attitude change in Austin I and II, though not in

Kentucky. Between classes, the effect was most evident where the class had a positive attitude to begin with. Thus, in most cases, but not in all sites and classes, there were positive, reciprocal effects between the measured coping skills and attitude change.

For the majority of students, in all three samples, positive self-esteem had a facilitating effect on attitude toward school. General attitude toward life had a similar facilitating effect in Austin I and II. Teacher-rated coping skills (probably a more valid measure than the self-report instruments) facilitated positive attitude toward school in Austin I and II. In Kentucky, this was true only for classes that had poor initial attitudes; those with good initial attitudes grew less favorable in their view of school, the higher their coping skills.

Time-on-task behavior showed another difference between sites. In Austin I and II, for all students except those few with extremely poor initial attitude toward school, concentration on tasks facilitated a positive change in attitude. In Kentucky (between-class), this was true for classes that began with a positive attitude; but attitude improvement was inversely related to time-on-task behavior in classes that had a poor attitude to start with.

Clearly, while good coping skills, self-esteem, and on-task behavior in class more often than not foster positive attitudes toward school, there can be important exceptions. Frequently, these exceptions are related to initial levels of attitude, itself. Students with negative initial attitudes do not subsequently react in the same way as those with positive initial attitudes. The practical implication is that it is advisable to keep a close, insightful, continuing eye on different sub-sets of students, who differ in initial attitude, coping skill and achievement level, to see how their attitudes may subsequently shift.

Individual changes in any and all of these qualities can be estimated, in many cases, by a perceptive teacher. It is clearly important to do so, wherever possible. A general formula such as "keep them on task; it's good for their morale", may work for many students; but it can be dead wrong, for some other students. From the present data, fostering high time on task looks like a promising strategy to try out: It probably will work more times than not. Where it is inappropriate, however, it can have negative effects. This needs to be spotted early, and different measures taken with those individuals or classes where it is actually having deleterious effects.

TABLE SA 1

THE RELATIONSHIP BETWEEN INITIAL ATTITUDE: SCHOOL AND PUPIL CHARACTERISTICS

	Correlations with Attitude to School		
	Austin 1	Austin 2	Kentucky 1
Achievement	.08	.18	.12
Academic Coping: Peer Rating	.20	.21	.20
Academic Coping: Self Rating	.33	.28	.29
General Coping: Self Report	.45	.52	.37
Attitude - General	.53	.56	.50
Self-Esteem	.39	.48	.39

*All correlation coefficients presented above are significant at the .01 level

TABLE SA 2
THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE ON ATTITUDE: SCHOOL

	AUSTIN 1				AUSTIN 2				KENTUCKY 1			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement	within L	.001	.61	+								
	between L	.001	8.18	+								
Academic Coping: Peer rating	within L	.001	1.40	+					within xp	.04	.43	
	between xp	.001	8.93						between L	.01	15.35	+
Academic Coping: Self-rating	between xp	.03	5.05		within L	.001	.68	+	within L	.001	1.10	+
									between L	.05	8.83	+
General Coping: Self-report	within L	.001	1.15	+	within xp2	.036	.30					
					L	.0001	1.07	+				
					between xp	.01	10.44					
Attitude: General	within L	.001	1.16	+	within L	.0001	1.97	+				
Self-esteem	within L	.001	1.64	+	within xp	.016	.39		within L	.001	.82	+

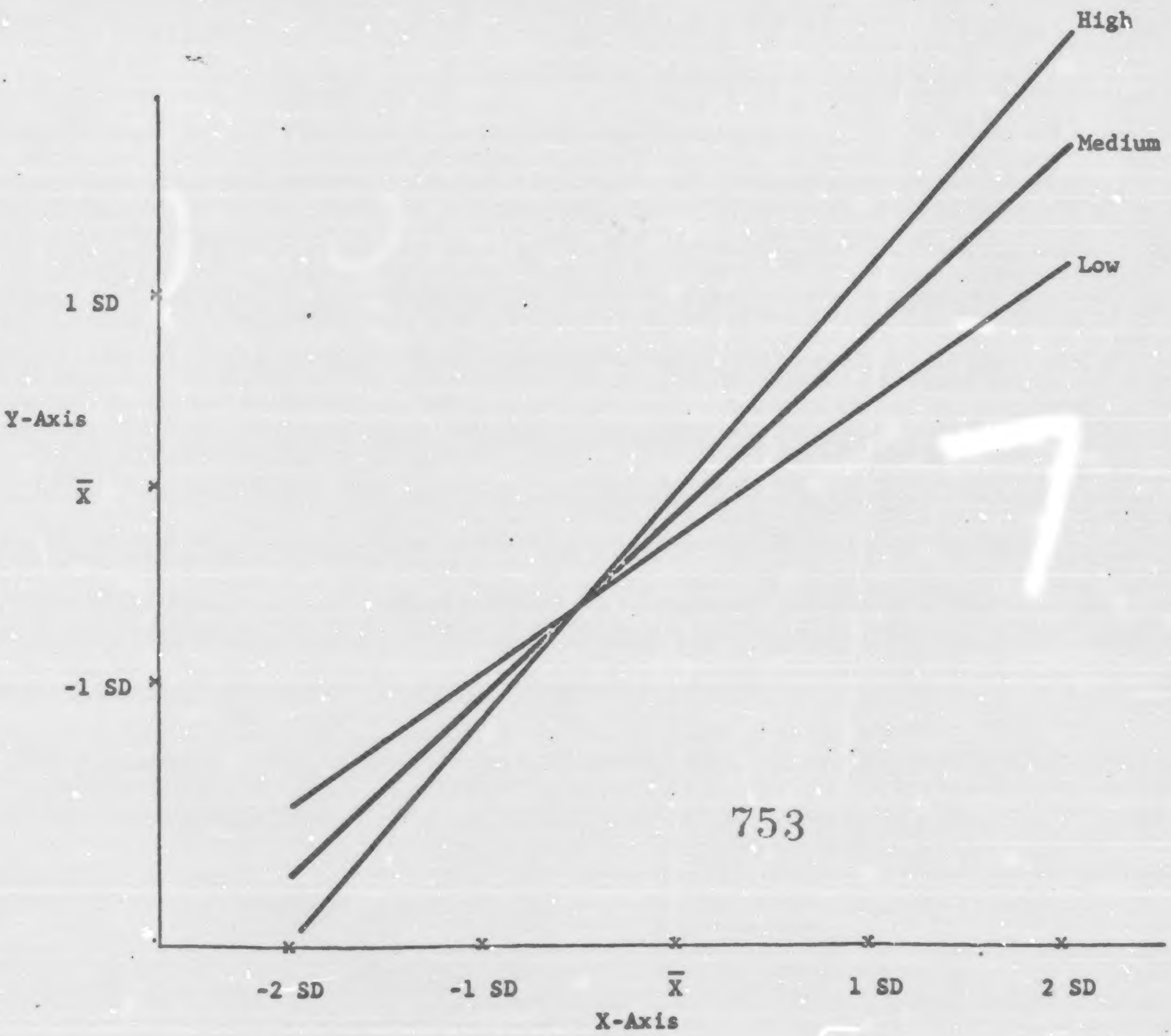
TABLE SA 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON REGRESSED CHANGE ON ATTITUDE: SCHOOL

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task	within				within				between			
	xp	.02	.86		L	.02	1.16	+	xp	.006	15.65	
Academic Coping	within				within				between			
	L	.0001	4.84	+	L	.0003	2.87	+	xp	.007	17.76	
					between				x2p	.01	12.20	
					x2p2	.03	8.78					
Social-Emotional Coping	within				within				between			
	L	.0001	3.97		L	.0002	2.93	+	xp	.01	19.24	
	xp	.008	1.56		xp2	.03	.98		p2	.03	11.79	
					between							
					L	.006	13.4	+				
COR-Pupil	between											
	L	.03	5.22	+								
	x2p2	.004	7.3	(no graph)								

GRAPH SA 1

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on BRS-SR (cop)

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Between-Class
Pretest controlled Yes

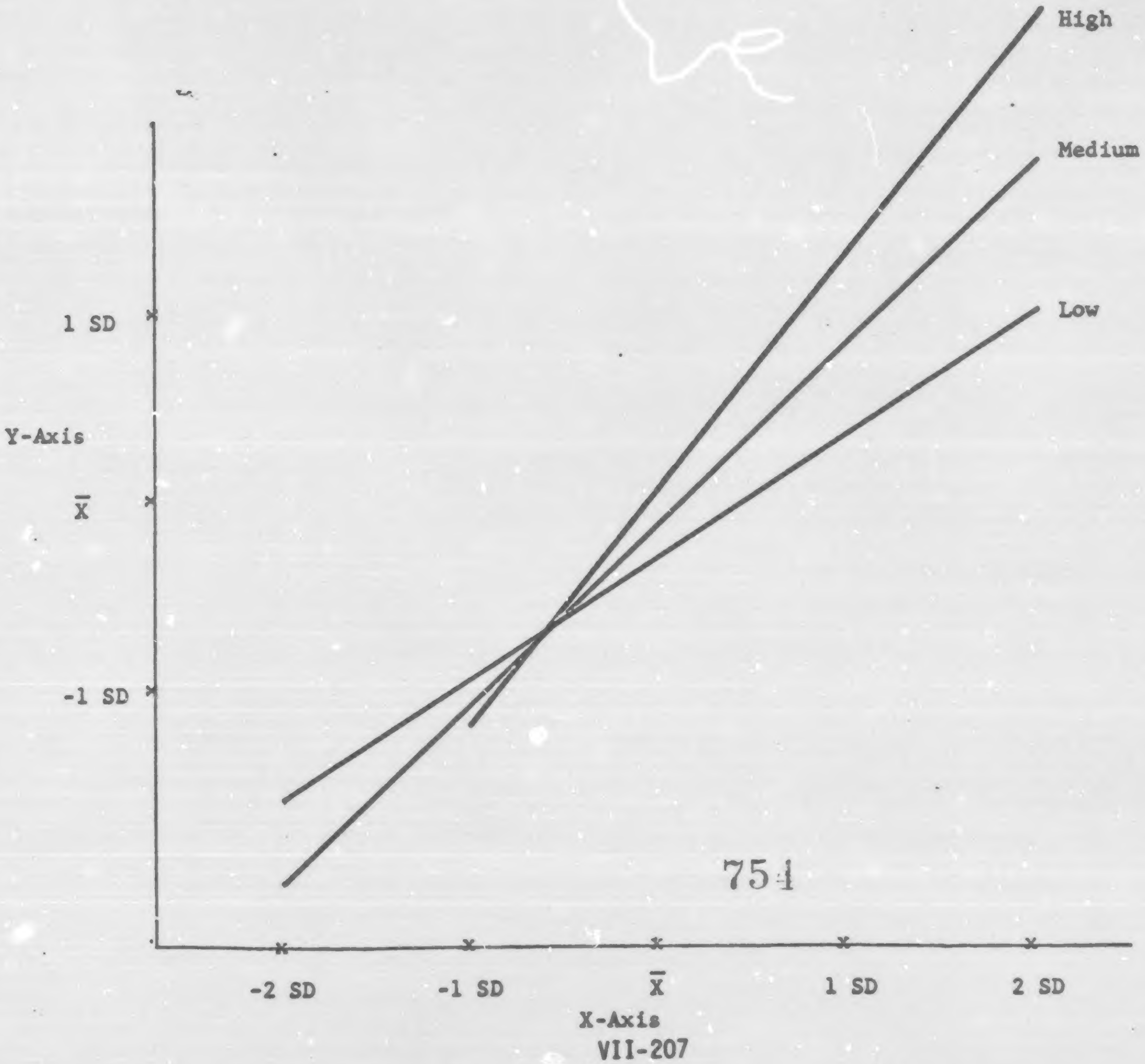


753

GRAPH SA 2

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on BRS-OR (cop)

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Between-Class
Pretest controlled Yes

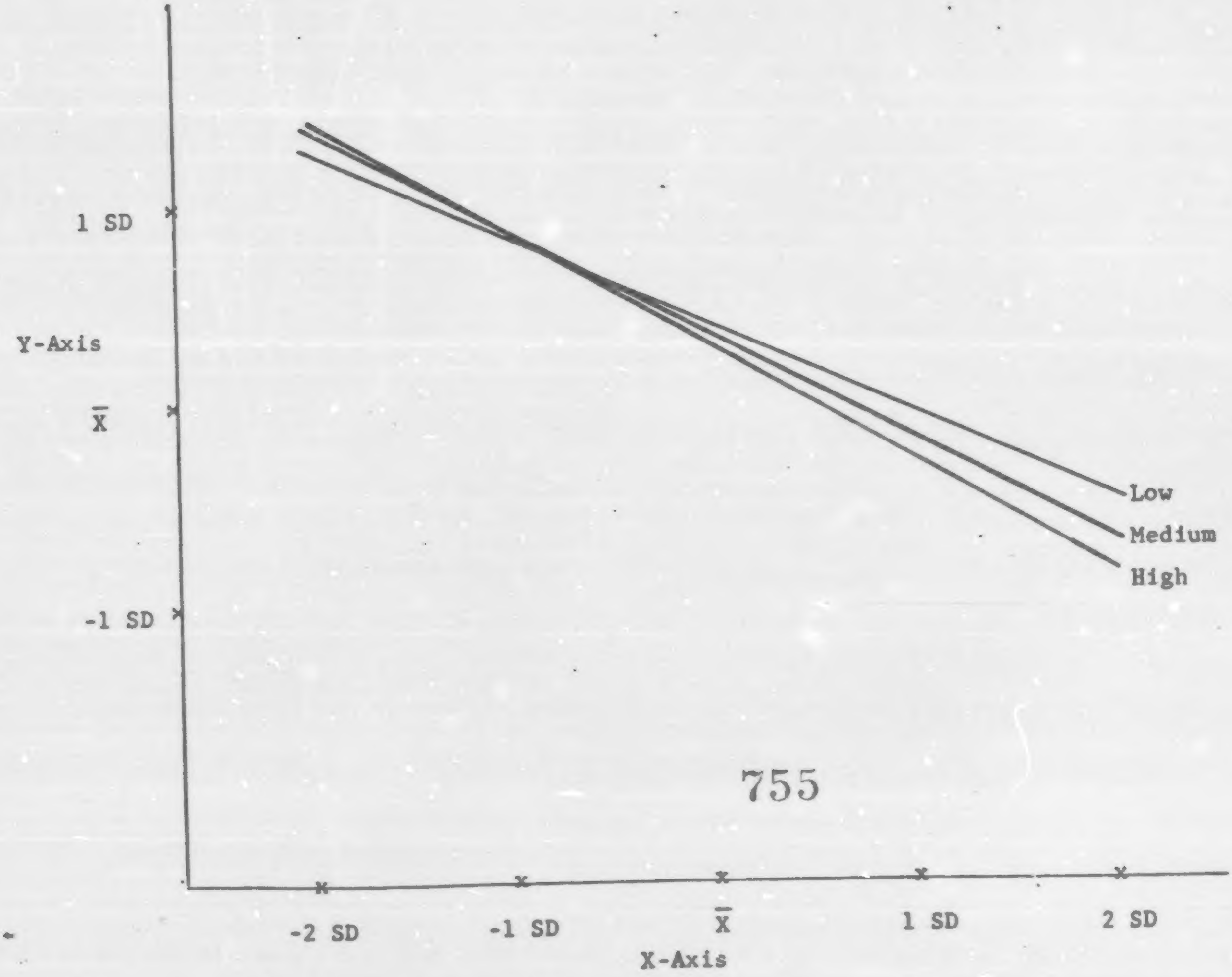


754

GRAPH SA 3

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on BRS-OR (Cop)

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Within-Class
Pretest controlled Yes

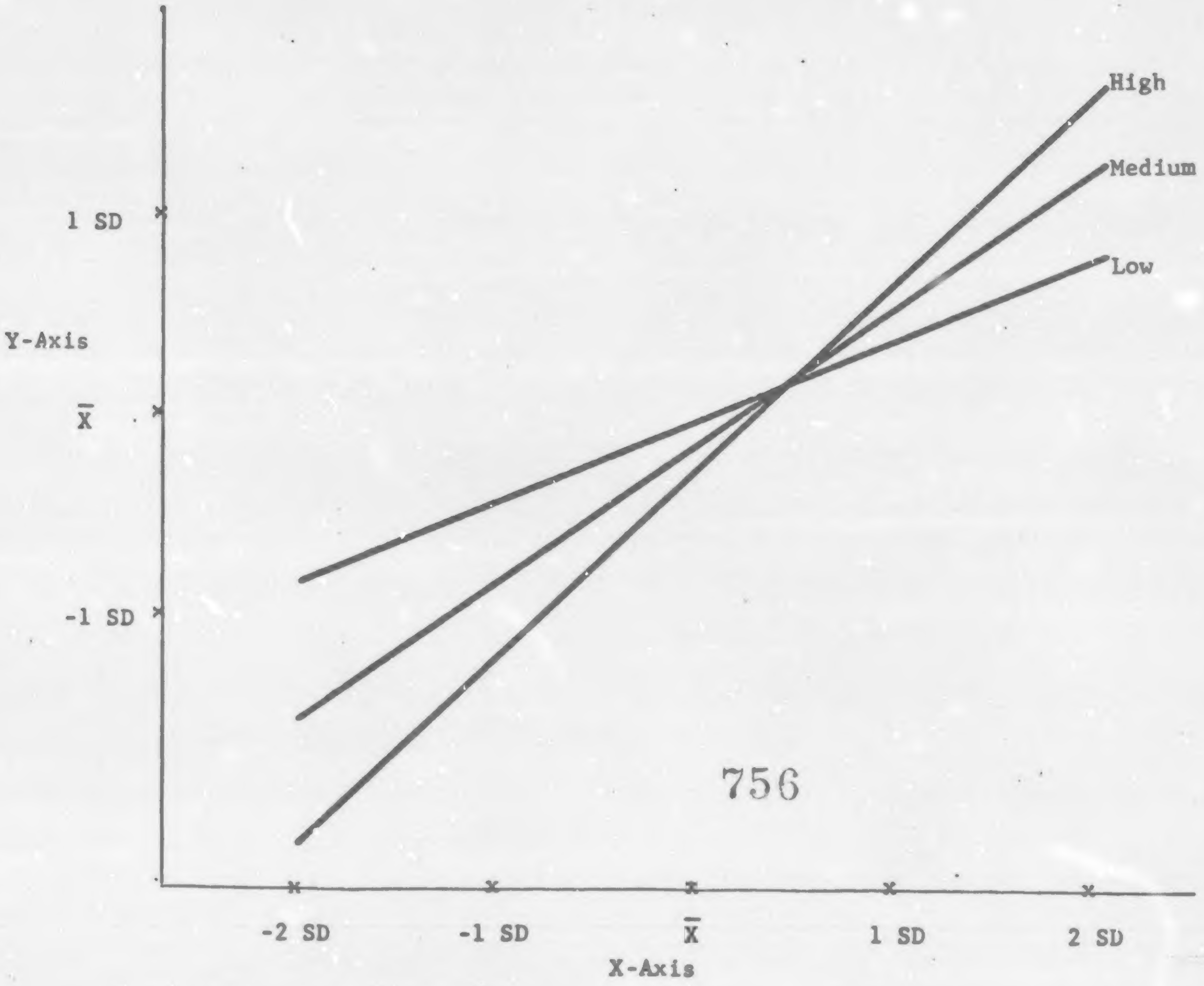


755

GRAPH SA 4

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on SSC-Cop

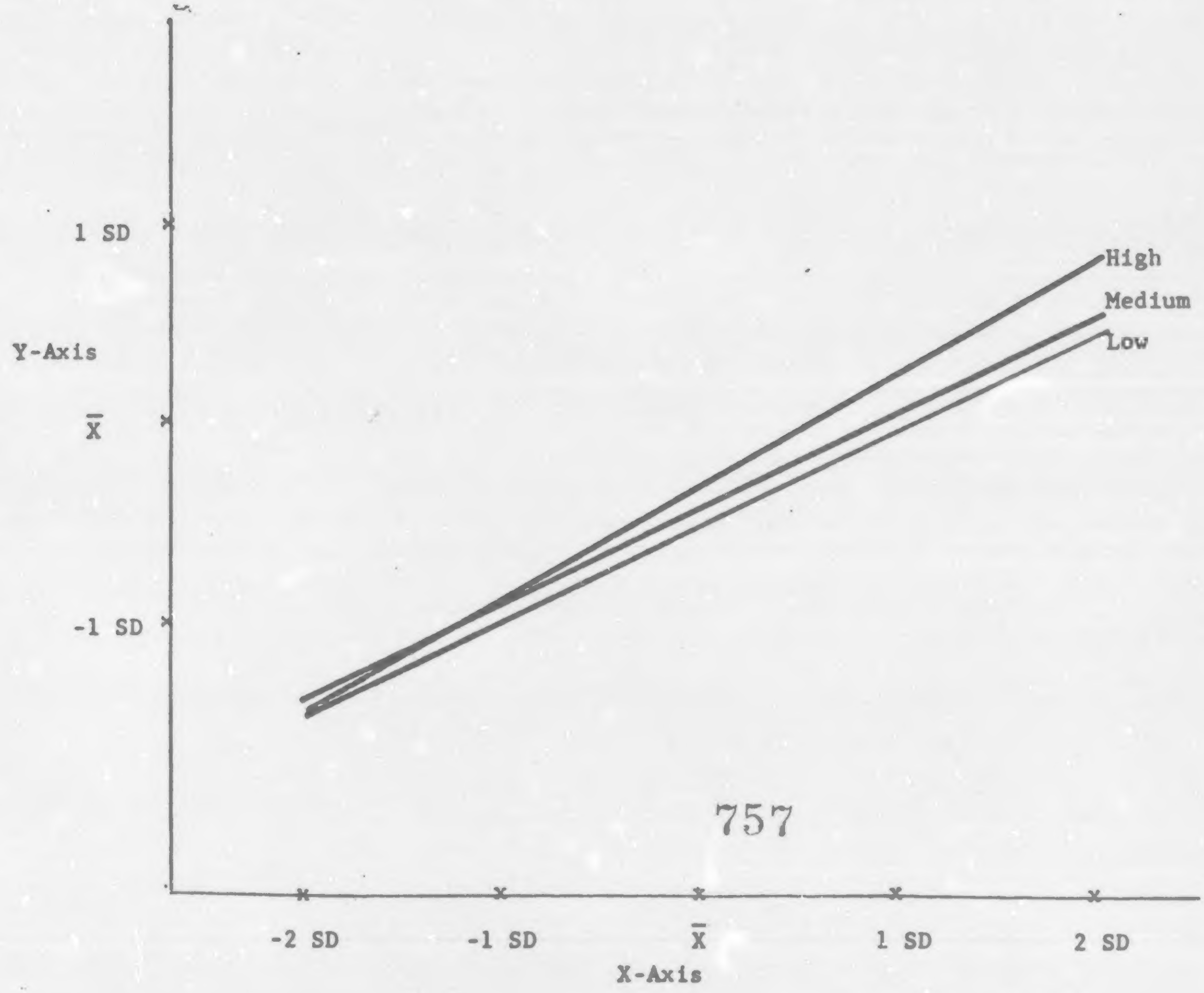
Effect Pre-L x Pupil-L
Year and site Austin II
Unit of Analysis Between-Class
Pretest controlled Yes



GRAPH SA 5

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on SSC-cop

Effect Pre-L x Pupil-Q
Year and site Austin II
Unit of Analysis Within-Class
Pretest controlled Yes

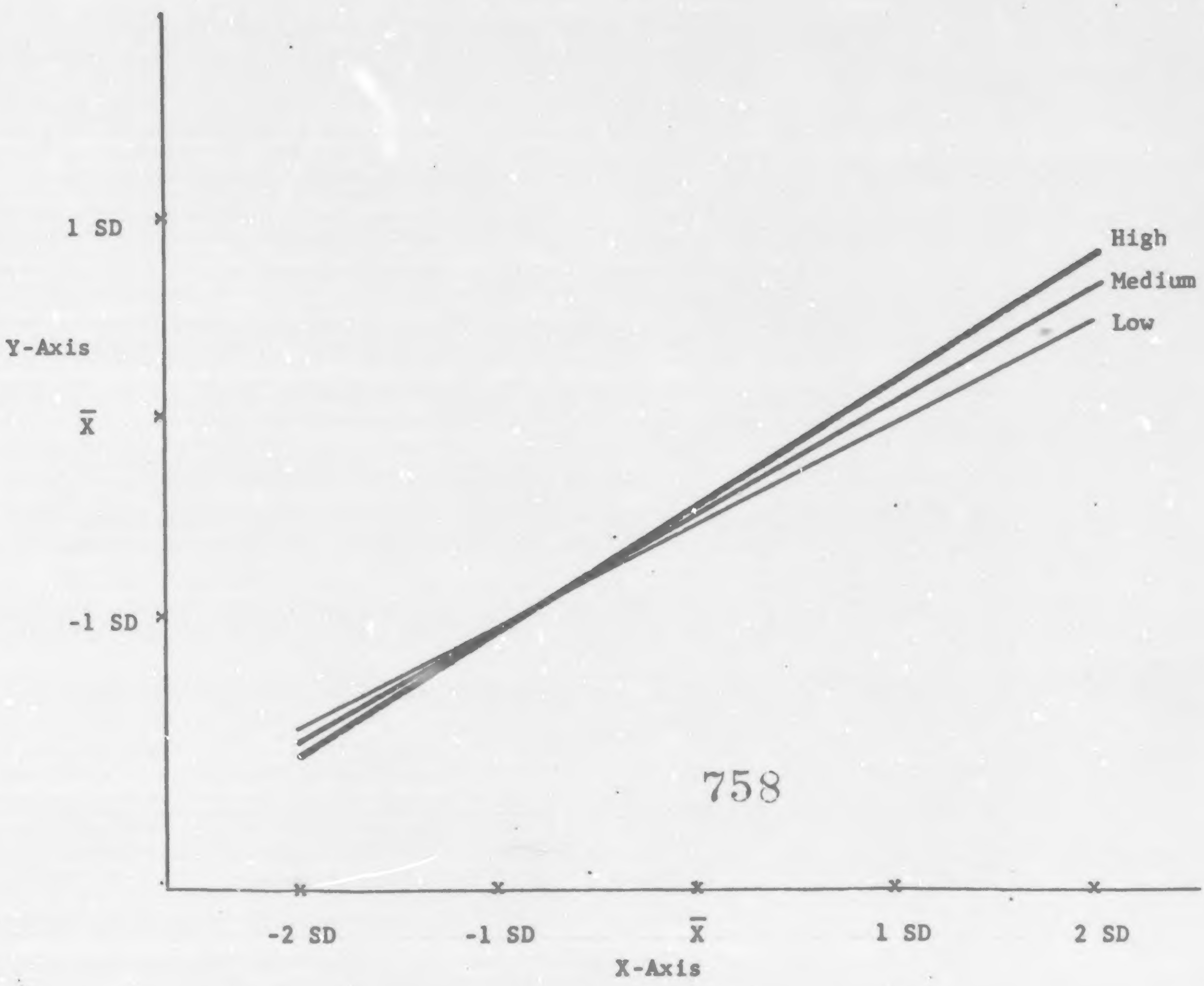


757

GRAPH SA 6

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Self-est (SSD)

Effect Pre-L x Pupil-L
Year and site Austin II
Unit of Analysis Within-Class
Pretest controlled Yes

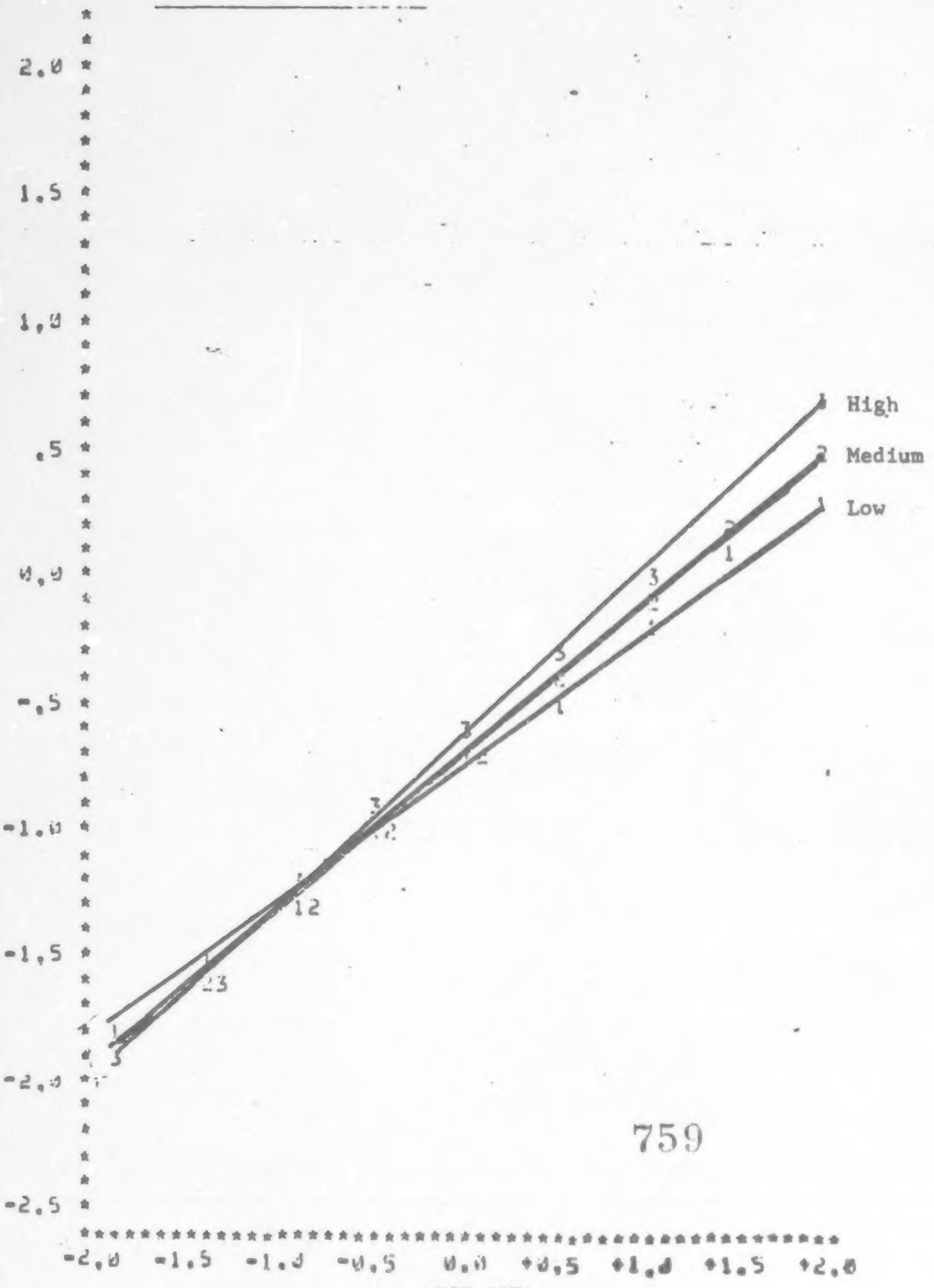


758

GRAPH SA 7

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on TOT

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled Yes



759

GRAPH SA 8

Y-Axis (Criterion) SSI-Att Post

X-Axis (Predictor) SSI-Att Pre

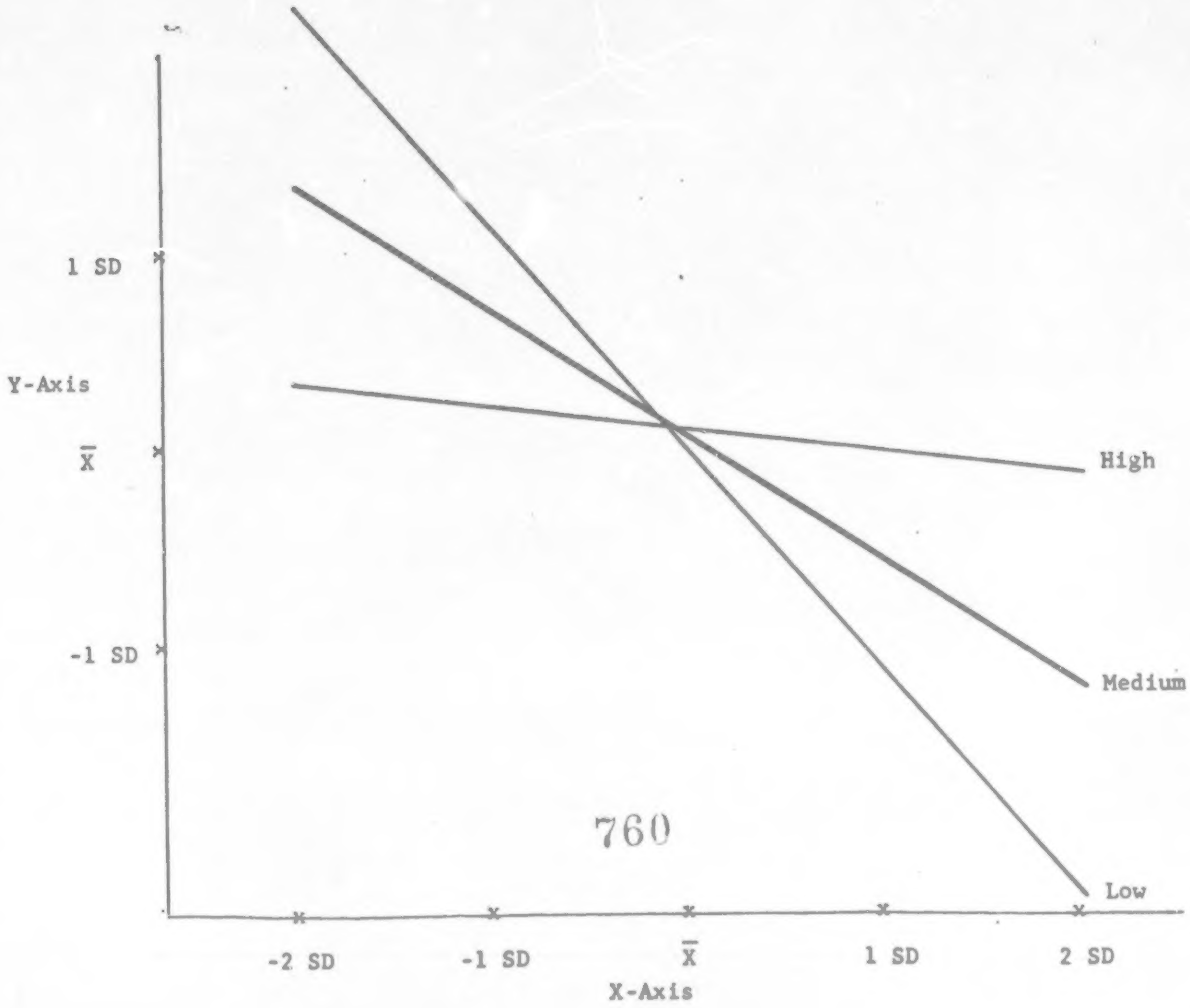
Grouped on TOT

Effect Pre-L x Pupil-L

Year and site Kentucky

Unit of Analysis Between-Class

Pretest controlled Yes

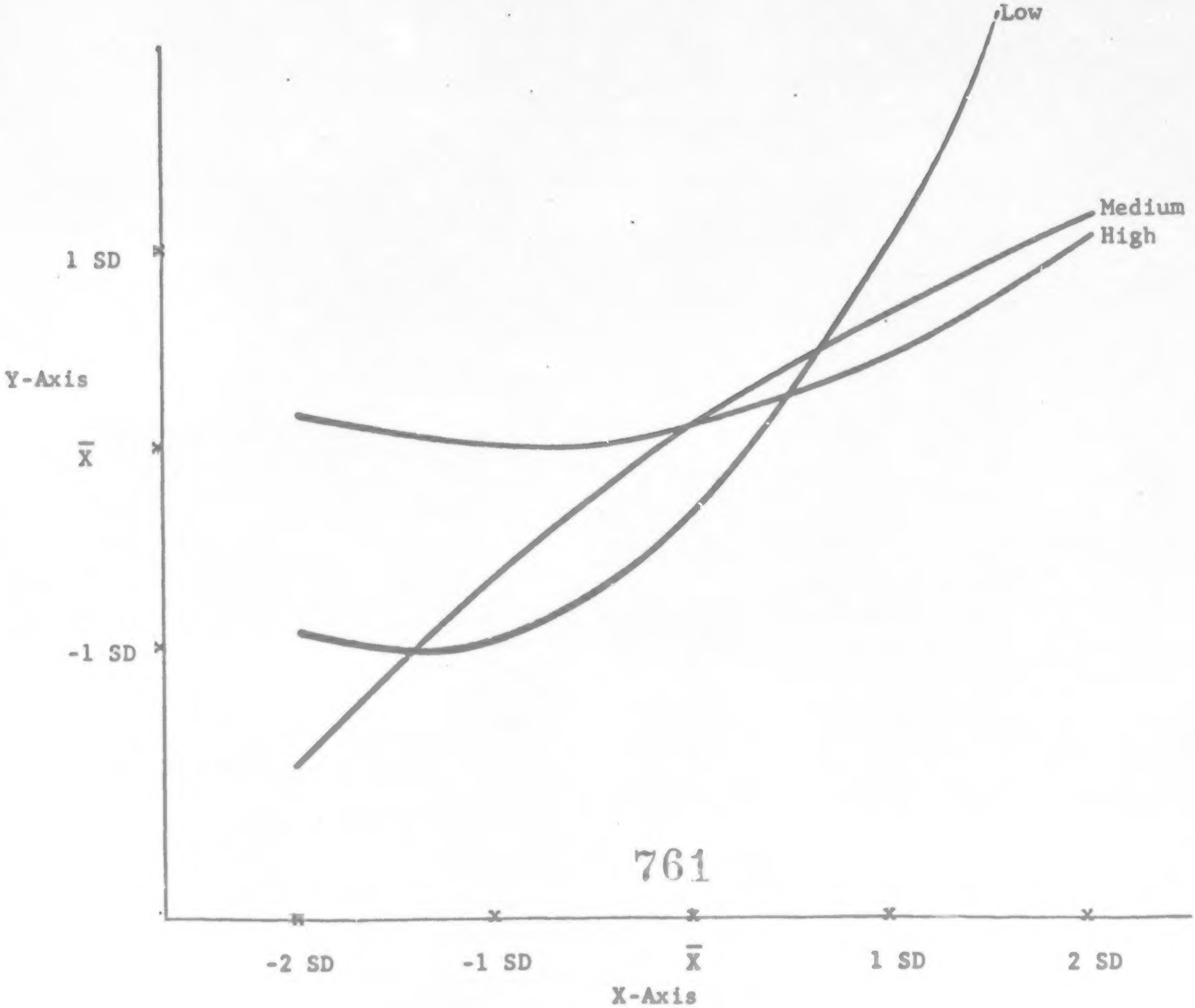


760

GRAPH SA 9

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Acad-Cop

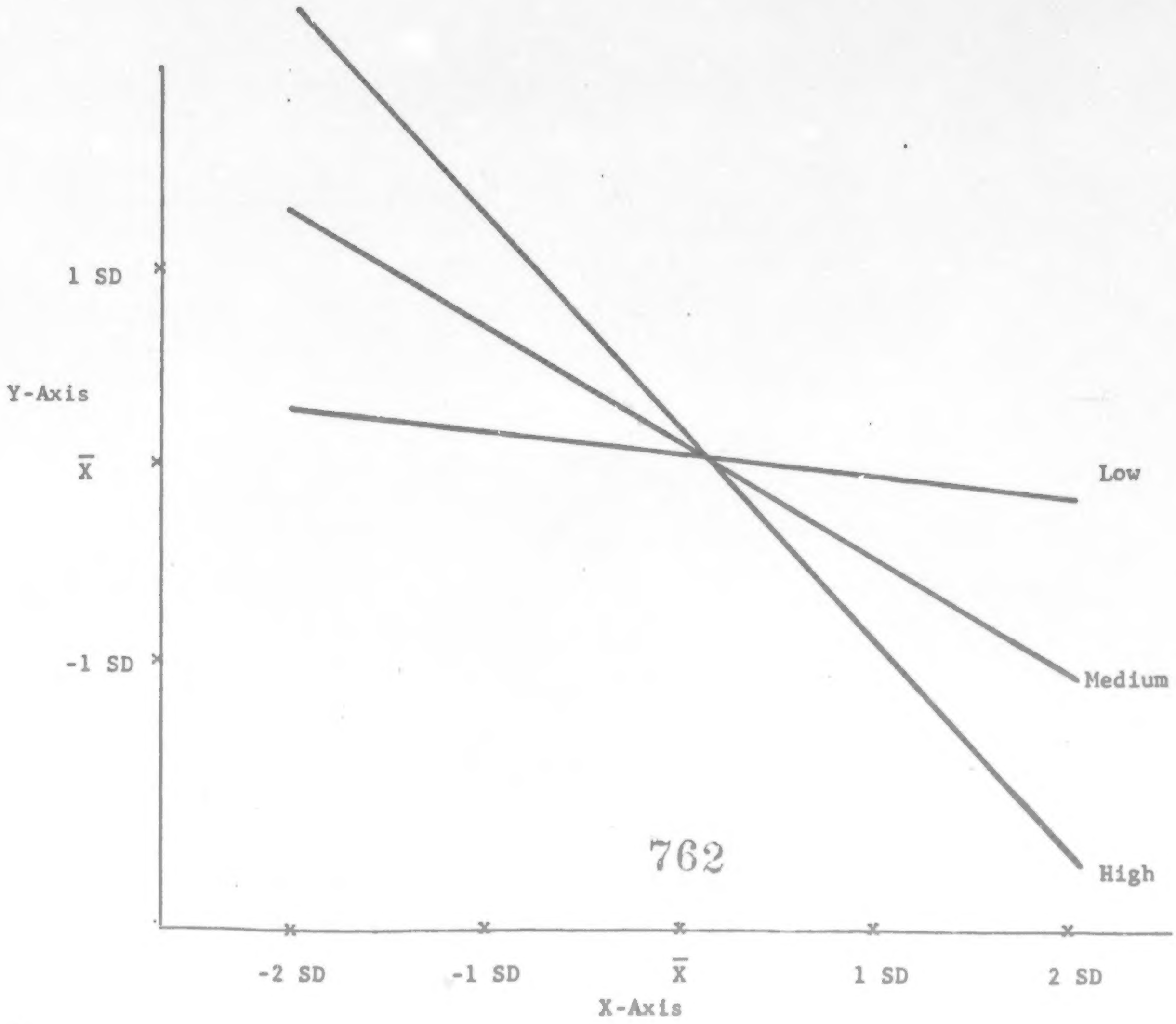
Effect Pre-Q x Pupil-Q
Year and site Austin II
Unit of Analysis Between-Class
Pretest controlled Yes



GRAPH SA 10

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Acad Cop

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled Yes

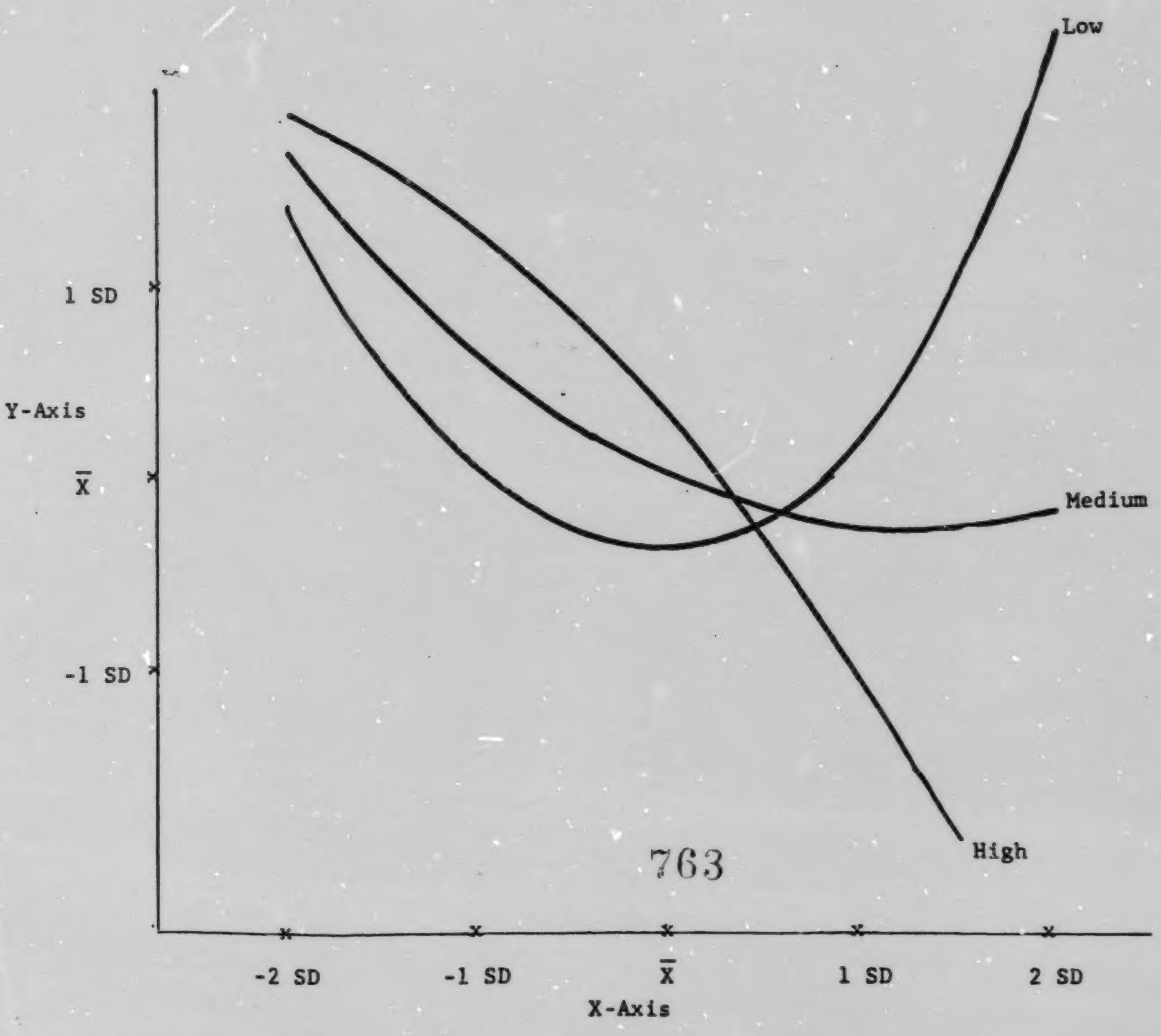


762

GRAPH SA 11

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Acad Cop

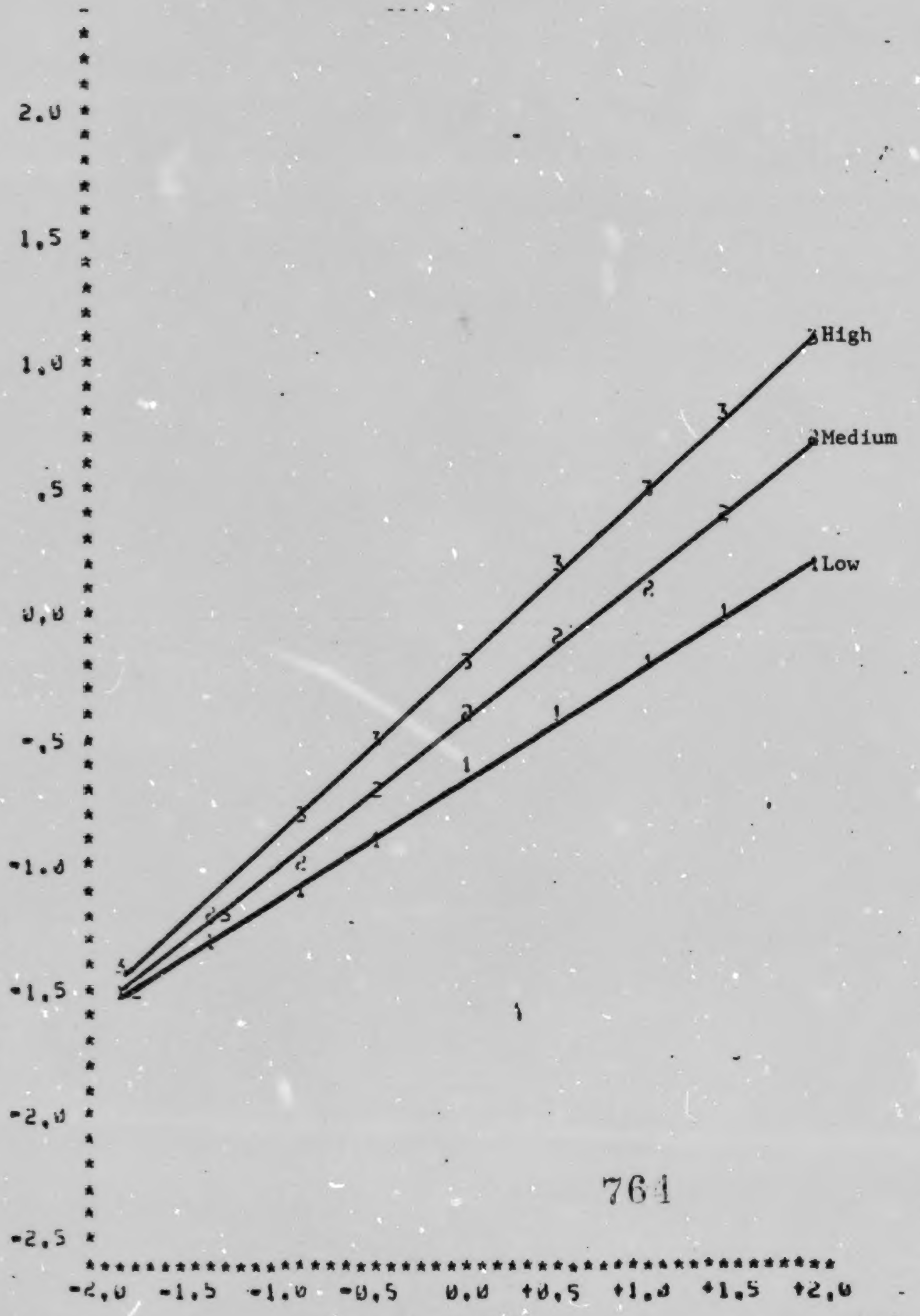
Effect Pre-Q x Pupil-L
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes



GRAPH SA 12

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Soc-Emo-Cop

Effect Pre-L x Pupil-L
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled Yes

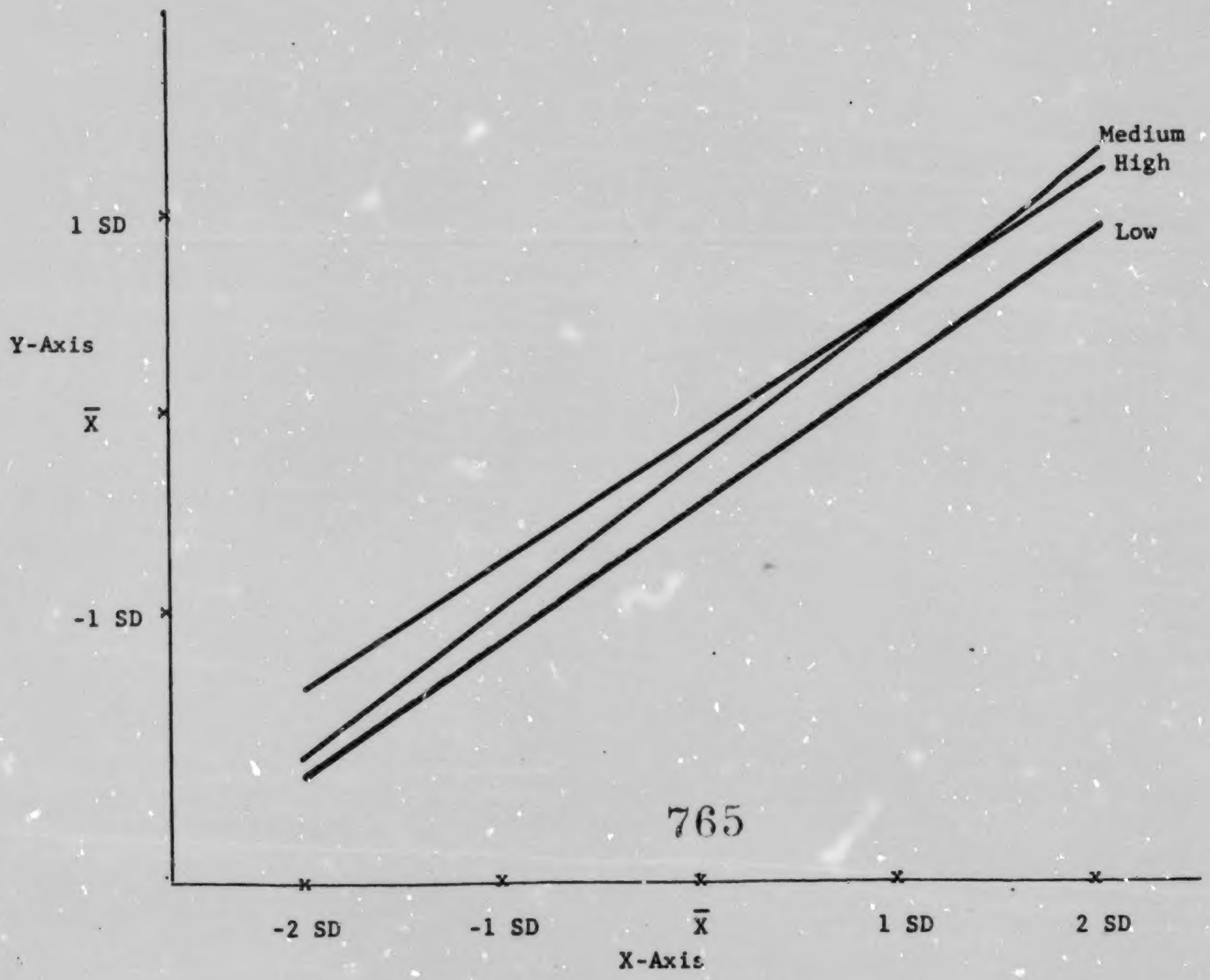


764

GRAPH SA 13

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI- Att Pre
Grouped on Soc-Emo-Cop

Effect Pre-L x Pupil-Q
Year and site Austin II
Unit of Analysis Within-class
Pretest controlled Yes

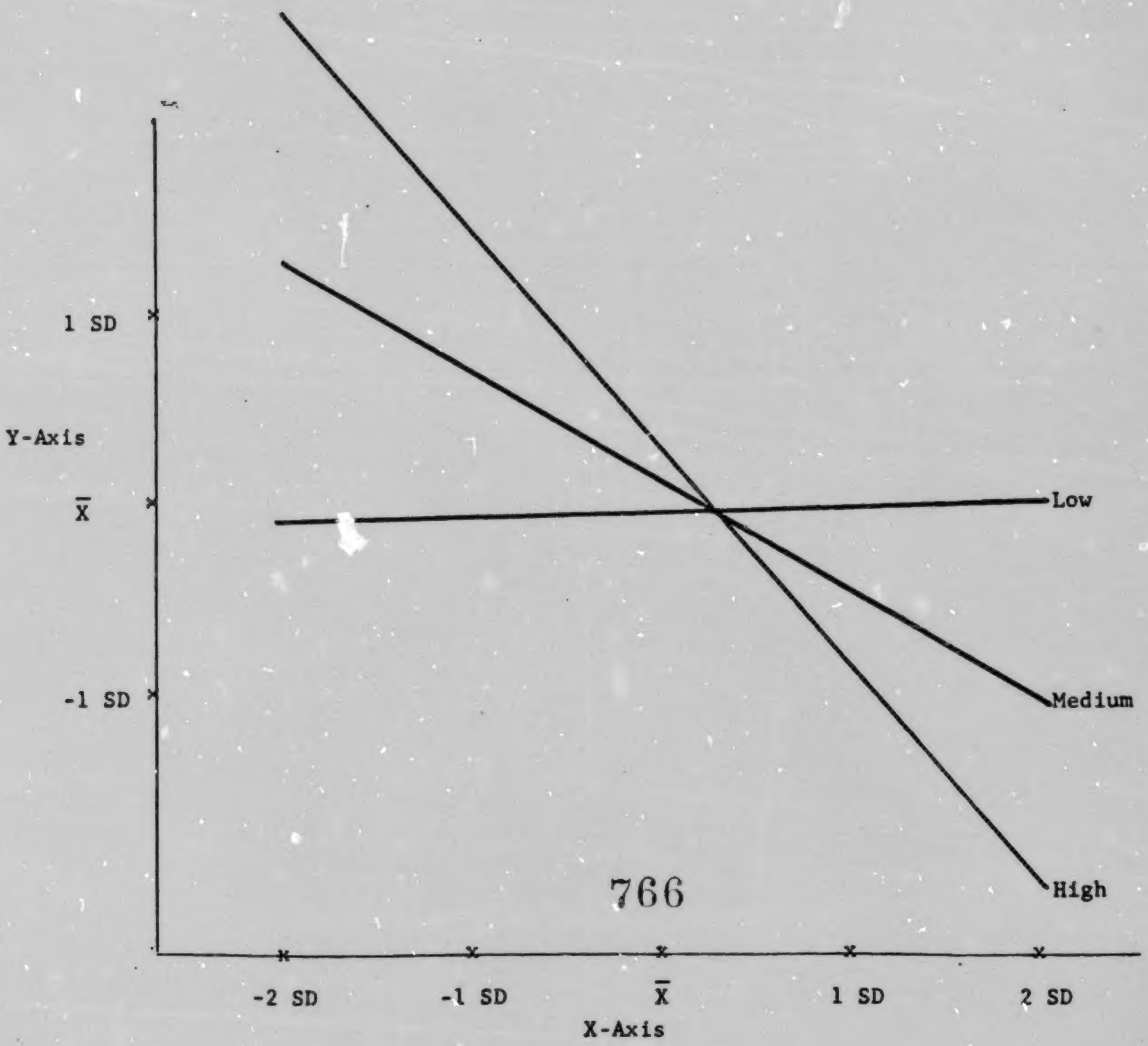


765

GRAPH SA 14

Y-Axis (Criterion) SSI-Att Post
X-Axis (Predictor) SSI-Att Pre
Grouped on Soc-Emo-Cop

Effect Pre-L x Pupil-L
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes

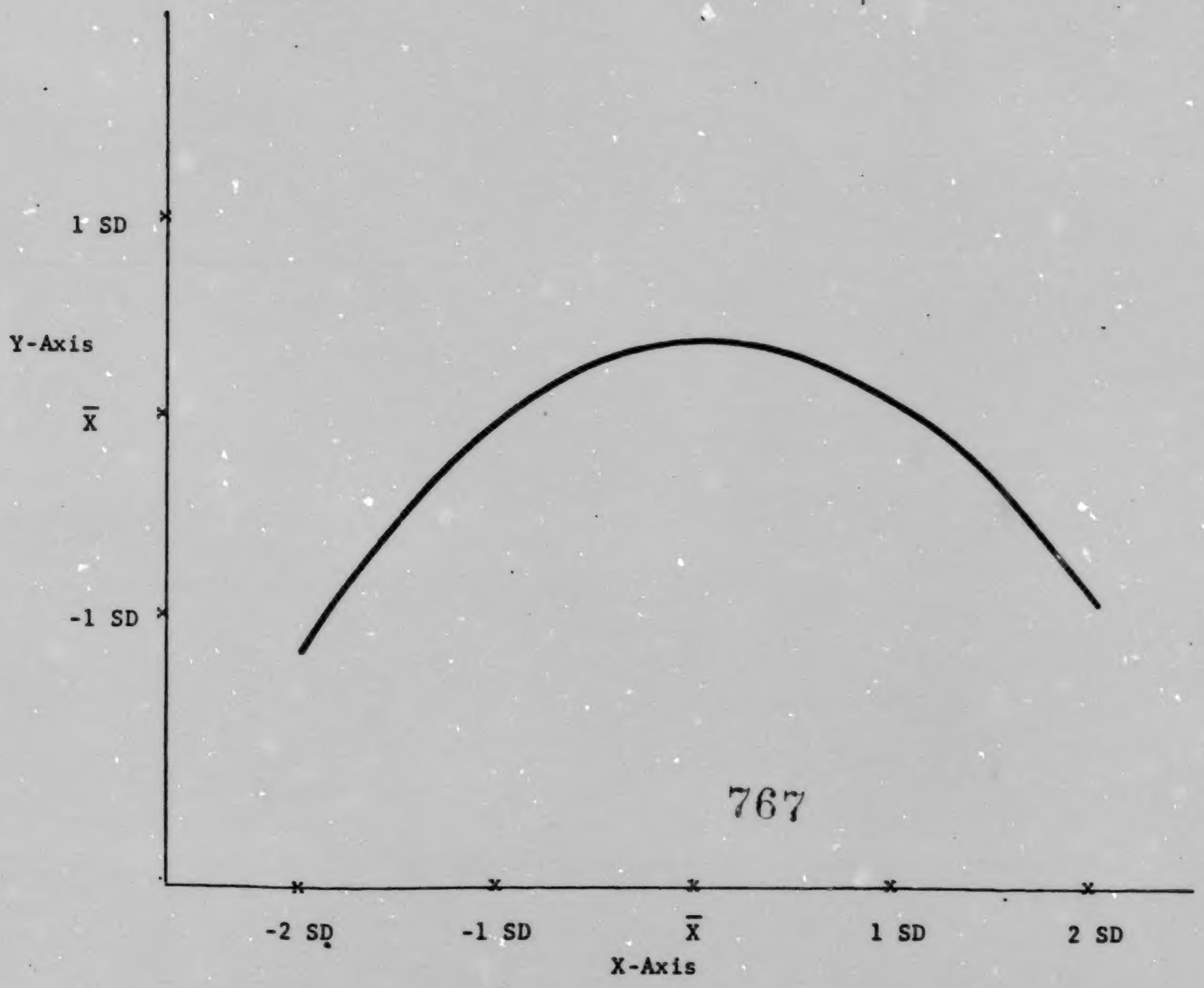


766

GRAPH SA 15

Y-Axis (Criterion) SSI-Att Post-Pre
X-Axis (Predictor) Soc-Emo
Grouped on

Effect Pupil-Q
Year and site Kentucky
Unit of Analysis Between-Class
Pretest controlled yes



Learning Outcome: Self-Esteem
As Measured By the Piers-Harris Self-Concept
And the Student Self Disclosure
(Modified Version of P-H used in Austin II)

The Relationship Between Initial Self-Esteem and Other Student Characteristics at the Beginning of the Year

The results of the PiersonProduct moment correlations from the general analysis indicated that initial self-esteem was substantially correlated with several other student characteristics. These results are presented in Table SE 1. The correlations between the Piers-Harris (P-H) pre-test and these self-report measures in Austin Year I were: .53 with self-rated coping skills (BRS-SR), .39 with students' attitudes towards school (SSI), .38 with students' attitude toward life in general (SSC-A), and .36 with students' self-perceived coping ability (SSC-C). The P-H pre-test was also correlated with measures which were not self-report, such as peer-rated coping (BRS-OR, .25) and achievement test performance (CTBS, .25). The results in Austin Year II and Kentucky were similar to those found in Austin Year I. The general correlations in Austin Year II between self-esteem (SSD, a modified version of the Piers-Harris) and other student characteristics were: .48 with the students' attitude toward school (SSI), .40 with student self-rated academic coping skills (BRS-SR), .38 with students' attitude toward life in general (SSC-A), and .35 with students' perception of their overall coping ability (SSC-C). Self-esteem was also correlated with peer-rated academic coping (BRS-OR, .23) and achievement test performance (GMG, .28). The results in Kentucky exhibited a similar pattern. The correlations between the Piers-Harris (P-H) pre-test and the other student measures in Kentucky were: .52 with self-rated academic coping skills (BRS-OR), .28 with peer-rated academic coping skills (BRS-OR), .24 with self-perceived coping (SSC-C), .30 with students' attitude toward life in general (SSC-A), .36 with students' attitude toward school (SSI), and .21 with students' academic achievement (CTBS), (Table SE 1).

The children, in short, do appear to react as whole organisms, with reciprocal linkages between coping skill and self-esteem, between attitudes about the surrounding world and attitudes toward self; and all of these reciprocally affected by, and acting upon, intellectual learning. While the pre-test correlations, alone, could not support this conclusion, the evidence of reciprocal effects on regressed change over the school year directly confirm this interpretation.

The Effects of Student Characteristics on Regressed Change in Self-Esteem

The effects of student characteristics on self-esteem are presented in Table SE 2.

The Effects of Achievement on Regressed Change in Self-Esteem.

Initial achievement level had a positive linear effect on change in self-esteem in the within-class analysis in all three samples. The effect was most visible (1.65% V) in Austin I and less so in Austin II (.45% V) and Kentucky (.50% V), (Table SE 2).

Between-class analysis revealed one strongly significant curvilinear effect (p .001, 15.9% V) in Austin II, illustrated in

Graph SE 1. In that sample, classes that were high in initial self-esteem gained even more self- esteem if they were high achievers initially. (From other evidence, it was seen that they continued to achieve well). Conversely, classes high in initial self-esteem but low in initial (and final) achievement lost self-esteem over the year. Classes low in initial self-esteem showed a similar pattern. If they were high achievers, they gained in self-esteem; but they lost, if they were low achievers. This seems to reflect realism on the students' part. Except for classes that were average in initial self-esteem experiencing academic success had a strongly beneficial effect on class self-esteem.

These findings are consistent with previous research which has found significant relationships between academic achievement and self-esteem (Bridgeman and Shipman, 1978; Rogers, Smith, and Coleman, 1978; Rubin, 1978; Rubin, Dorle, and Sandidge, 1977; West and Fish, 1974). West and Fish (1974) offer a comprehensive review of empirical research on the relationship between self-esteem and academic achievement. They conclude that the literature clearly indicates a significant relationship between some aspects of the self-concept and academic achievement. West and Fish (1974), however, found the nature of the relationship unclear, citing little evidence of causation and little uniformity in definition and approach to the measurement of self-esteem.

The present findings shed additional light on this relationship. The linear results indicate that the higher the achievement of students, the higher their level of self-esteem. Furthermore, in this longitudinal, predictive design, the regressed gain in self-esteem took place subsequent to the measure of initial achievement. The relationship of entering achievement level to subsequent change in self-esteem might more plausibly be considered a causal sequence than when simultaneous measures are correlated, as in most previous studies. The present results indicate that a cumulative experience of academic success predisposes students to make further gains in their self-esteem.

The Effects of Peer-Rated Academic Coping

Initial peer-rated academic coping significantly affected self-esteem in two of the samples. The results of the within-class analysis yielded positive linear effects in Austin I (p .001, 1.39% V) and Kentucky (p .001, 1.62% V). The higher the initial peer-rated coping, the greater the gain in self-esteem at the end of the year. A quadratic interaction effect was also found in the between-class analysis with both of these samples, Austin I (p .02, 5.06% V) and Kentucky (p .04, 13.72% V).

This quadratic interaction effect found in Austin I is illustrated in Graph SE 2. Classes that were high in coping skill and high in initial self-esteem maintained their level of self-esteem over the year. Classes that were high in coping skill but low in initial self-esteem made a substantial gain in self-esteem over the year. Conversely, classes that were low in coping skill actually lost ground in their self-esteem if they had a high level of self-esteem at the onset of the year. Classes with low coping skill who were low in initial self-esteem maintained their low level. Classes with medium coping skills maintained their initial level of self-esteem over the year. Similar effects are illustrated in Graph SE 3, which shows the results found in

Kentucky. The only difference was that the loss in self-esteem by the low copers with initial high level of esteem was more severe in the Kentucky sample. If the premise is reasonable that self-esteem level is most realistic when it corresponds to peers' perceptions of coping skills, all of these patterns suggest that classes tended to adjust their self-evaluations quite realistically to come closer to the students' collective perception of one anothers' coping skills.

The Effects of Self-Rated Academic Coping

Initial self-rated academic coping had a positive linear effect on change in level of self-esteem in the within-class analysis in all three samples. Table SE 2 illustrates that this effect was more visible in Austin I (1.36% V) and Kentucky (1.11% V) than in Austin II (.64% V). There was also a positive linear effect (p .01, 5.73% V) in Austin I in the between-class analysis. These linear findings indicate that the greater the students' self-perceived academic coping, the greater their increase in self-esteem.

The results of the between-class analysis in Austin II yielded a significant interaction effect between self-rated coping skill and initial self-esteem in the prediction of regressed gain in self-esteem. This interaction effect is illustrated in Graph SE 4. Classes with low initial self-esteem gained more in self-esteem, the higher their self-perceived coping skill. Classes with high initial self-esteem lost some ground in self-esteem as their self-perceived coping skills increased. One possible interpretation of these results might be that classes with low self-esteem do not usually expect to succeed in school. If they perceive themselves as being effective copers, however, they may try harder and thus experience more success than the classes who believe they have poor academic coping skills. Teachers usually give greater reinforcement to students who do try to handle their classroom environment appropriately. Such factors might cause these classes have a greater gain in self-esteem. On the other hand, classes with high initial self-esteem might take success for granted, and grow somewhat less pleased with themselves if they did "only" as well as expected. Classes with low initial confidence in their academic skills might try harder to adjust to their school environment, receive more reinforcement, and therefore make greater gains in self-esteem than those classes which initially perceive themselves as good copers and don't try as hard.

In Kentucky, a different pattern of interaction occurred (Graph SE 3). Classes which had high mean coping scores gained more in self-esteem than other classes, especially if they had low initial self-esteem. Classes average in coping skill simply mentioned their initial level of self-esteem. Low-coping classes, on the other hand, gained a little in self-esteem if they were initially low, but lost self-esteem markedly if they had initially given themselves high self-esteem scores.

These findings suggest that programs aimed at raising students' self-esteem should look out for different reactions from students who have high and low initial self-esteem, or who differ in their self-perceived skills in coping with school.

The Effects of Self-Reported, General Coping Ability on Self-Esteem

Initial self-reported coping ability affected regressed gain in self-esteem in Austin I and Kentucky. There was a significant positive effect (p .001, .42% V) in the within-class analysis in Austin I. The results of the between-class analysis in Austin I also yielded a positive linear relationship (p .04, 3.82% V), as it did in Kentucky (p .03, 14.16% V). It appears that in most cases, the higher one's peer-perceived and self-perceived coping ability, the greater the increase is likely to be in self-esteem. These results are also consistent with previous empirical research results indicating that self-esteem is significantly correlated to academic coping skills (Hughes, 1968; Lewis, 1971; Manaster, 1972; Peck, et al, 1973; Sears, 1970; Shiffler, Lynch-Sauer, and Nadelman, 1978). This finding lend further empirical support to the theoretical postulate that effective coping behavior enhances one's level of self-esteem (Bruner, 1968; Peck, 1979; White, 1959, 1974). The effect was not universal, however; it did not appear in Austin II.

The Effects of Attitude Toward School on Regressed Change in Self-Esteem

Changes in self-esteem were not related to initial attitude toward school in Austin II or Kentucky, in either within or between-class analyses. In Austin I, initial attitude toward school did affect change in self-esteem in both types of analyses, but only in interaction with teachers' systematic-organized or stimulating-imaginative behavior (SSI*COR-SO and COR-SI). These effects are described in Chapter IX.

The students, everywhere, seem to have made a clear distinction between their evaluation of their schools and their appraisals of themselves; another sign of objective realism in their thinking.

The Effects of Attitude in General on Regressed Change in Self-Esteem

General attitude had a positive linear effect (p .01, .32% V) on change in self-esteem in Austin I as a result of the within-class analysis. The more positive the students' overall attitude toward life, the greater was their increase in self-esteem. The results of the within-class analysis in Austin I also yielded a significant interaction effect (p .001, .49% V). Graph SE 5 illustrates that students with high level of initial self-esteem gained the most if their attitude toward life was moderately positive. Their gain was next highest when their attitude was very highly positive, and least when their attitude was poor. Among students' whose initial self-esteem was low, those students with the most positive attitude gained the most, followed by those with moderately positive attitude; those with the most negative attitude gained the least. Students with high initial self-esteem may gain further in self-esteem when they aren't too extremely optimistic in their expectations of life. Those with a more realistic, moderately optimistic outlook may have a better chance to gain in self-esteem. Yet, optimism was very beneficial to students who had low self-esteem.

In the other two samples, however, there simply was no relationship between initial attitude toward life and changes in self-esteem.

The Effects of Time on Task (TOT) on Regressed Change in Self-Esteem. The results of the within-class analysis in Austin Year I indicate a significant linear relationship between time on task and the students' level of self-esteem (p .01, 1.90% V). The more time students spent on academic tasks, the greater was their increase in self-esteem over the school year. (See Table SE 3).

This pattern was also found in Kentucky in the between-class analysis. Classes which spent more time on task had greater gain on self-esteem (p .05, 15.18% V). However, there was also a significant quadratic interaction effect between TOT and initial self-esteem, as these affected gain in self-esteem. (p .05, 11.36% V; Graph SE 6). Classes that started out below the mean in self-esteem did not change much in self-esteem if they were at least medium in time-on-task; they even gained a little if they were high time-on-task. Classes with very low initial self-esteem who spent little time-on-task, however gained more on self-esteem. Classes much above average in initial self-esteem tended to lose self-esteem if they spent much time-on-task, more than such classes that spent relatively little time-on-task. The effect of time-on-task on self-esteem was negative for classes that were extremely high or extremely low in initial self-esteem; but beneficial for the majority of classes, which started out in the middle range in self-esteem.

The Effects of Academic Coping Behavior on Regressed Change in Self-Esteem. Students' coping behavior as assessed by their teachers, influenced their gain in self-esteem. The results of the within-class analysis yielded a positive linear relationship between level of self-esteem and their academic coping behavior in Austin I (p .01, 2.86% V) and Kentucky (p .02, 1.54% V) (Table SE 3). There was an additional quadratic interaction effect between initial self-esteem and academic coping (within-class, p .05, .63% V). Students who had a high level of self-esteem upon entering school increased their level of self-esteem to a much greater degree if they were able to cope well in school (Graph SE 7). Students entering school with a low level of self-esteem did not significantly increase their level of self-esteem unless they were good copers in school. Their self-esteem seems to have been linked rather realistically with their actual academic competence.

The results of the between-class analysis in Austin I also yielded a positive linear relationship between level of self-esteem and academic coping (p .01, 7.18% V). The greater a class' coping skill, the greater was its growth in self-esteem.

The results of the between-class analysis in Kentucky also yielded a significant quadratic relationship between academic coping and gain in self-esteem (p .05, 14.2% V). As illustrated in Graph SE 8, classes with extremely high and low class means (+ or - 2 SD from the mean) on academic coping had greater gains in self-esteem than classes with means which were in the middle range in academic coping. One possible explanation might be that in classes with extremely poor academic coping skills, the teacher may tend to make an extra effort to help them improve, and thus foster greater self-esteem. Classes which are very competent in dealing with their school environment are likely to experience reinforcement from their teacher, and also from fellow students, other teachers, and administrators. Classes may get less concentrated help from teachers, yet not have the strong, independent skill to do so well that they even gain in self-esteem.

The Effects of Social-Emotional Coping and Class Behavior (COR-Pupil) on Regressed Gain in Self-Esteem

In Austin Year I there was a positive linear relationship between social-emotional coping and gain in self-esteem in both within-class analysis (p .003, 2.01% V) and between-class analysis (p .02, 5.08% V). The higher the students' and class' observed social-emotional coping, the greater their increase in self-esteem. These findings are consistent with the results concerning coping and self-esteem. These results lend empirical support to the theoretical postulate that effective coping behavior is conducive to an increase in level of self-esteem. The results of the between-class analysis in Austin I also yielded a significant quadratic interaction effect between initial self-esteem and COR-Pupil in its prediction of gain in self-esteem.

Summary: Replication of Results

The variables that consistently influenced growth in self-esteem were initial achievement level and coping ability (as measured by several instruments), in both within-class and between-class analysis. The results of the within-class analysis yielded the following significant findings: (1) Students' entering achievement scores (a cumulative effect of all previous learning) were linearly related to gain in self-esteem over the subsequent year; the higher their initial achievement, the more they gained in self-esteem. The effect was not strong but it was consistent in all three samples. (2) Self-rated school coping skill (BRS-SR) had a positive effect on growth in self-esteem in all three samples; and (3) Peer-rated school coping (BRS-OR) was predictive of growth in self-esteem in Austin I and Kentucky. In the special study group, academic coping skill positively affected growth in self-esteem in Austin I and Kentucky.

The results of the between-class analysis yielded the following: (1) In Austin II, the beneficial effect of good initial achievement on growth in self-esteem was particularly strong for classes that were either above or below the middle range in their initial self-esteem; (2) Growth in self-esteem was positively affected by self-perceived coping ability (SSC-C) in Austin I and Kentucky; (3) In both these sites, peer-rated coping (BRS-OR) interacted with initial self-esteem to predict growth in self-esteem; and (4) In the special study group, in both sites, academic coping interacted with initial self-esteem in predicting growth in self-esteem.

Although attitudes toward life and school have been found to be related to gain in self-esteem, initial coping ability and objective achievement were the most consistently found, in all three sites, to be positively related to gain in self-esteem. Time-on-task had a similarly positive effect in two of the three samples, for most classes. These results add empirical support to the theoretical proposition that generally effective coping behavior and demonstrably good performance are each conducive to growth in self-esteem (Antonovsky, 1979; Murphy, 1962; Peck, 1979; White, 1959, 1972). These results also confirm previous empirical findings that a relationship exists between these two variables (Hughes, 1968; Lewis, 1971; Manaster, 1972; Peck, 1977; Sears, 1970; Shiffler, Lynch-Sauer, and Hadelman, 1978). Effective coping behavior seems to provide intrinsic reinforcement to the individual through self-awareness of his mastery of the problem situations. Such mastery also enables others to give positive reinforcement to the individual. These intrinsic and extrinsic reinforcements are probably the experiences that foster growth in self-esteem.

TABLE SE 1

THE RELATIONSHIP BETWEEN INITIAL SELF-ESTEEM AND PUPIL CHARACTERISTICS

	Austin 1 (PH)	Austin 2	Kentucky 1
Achievement	.26	.28	.21
Academic Coping: Peer Rating	.25	.23	.28
Academic Coping: Self Rating	.53	.40	.52
General Coping: Self Report	.36	.35	.24
Attitude - General	.38	.38	.30
Attitude - School	.39	.48	.39

780

TABLE SE 2
THE EFFECTS OF STUDENT CHARACTERISTICS ON REGRESSED CHANGE IN SELF-ESTEEM

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Achievement	within L	.001	1.65	+	within L	.01	.45	+	within L	.01	.51	+
					between xp2	.001	15.93					
Academic Coping: Peer Rating	within L	.001	1.39	+					within L	.001	1.62	+
	between xp2	.02	5.06						between xp2	.04	13.72	
Academic Coping: Self-Rating	within L	.001	1.36	+	within L	.001	.64	+	within L	.001	1.11	+
	between L	.01	5.73	+	between xp	.04	6.17					
General Coping: Self-Report	within L	.001	.42	+					between L	.03	14.16	+
	between L	.04	3.82	+								
Attitude: General	within L	.01	.32									
	xp2	.001	.49	+								

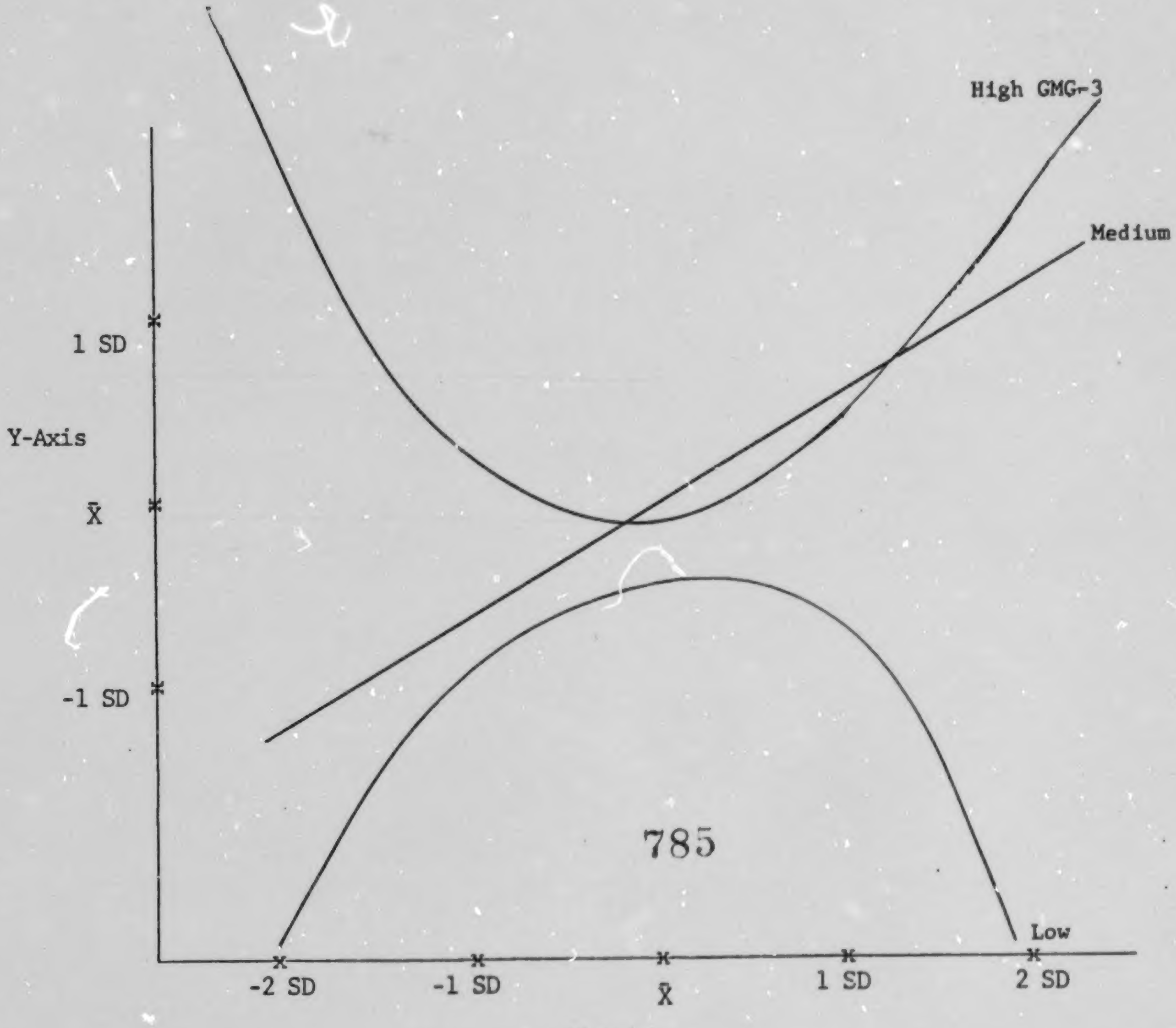
TABLE SE 3
THE EFFECTS OF CLASSROOM BEHAVIOR ON SELF-ESTEEM

	AUSTIN I				AUSTIN II				KENTUCKY			
	Effect	p value	% V	Direction	Effect	p value	% V	Direction	Effect	p value	% V	Direction
Time on Task	within								between			
	L	.0004	1.90	+					L	.03	15.18	+
									x2p2	.03	11.36	
Academic Coping	within								within			
	L	.01	2.86	+					L	.02	1.54	+
	xp2	.03	.63						between			
	between								p2	.04	14.25	
	L	.002	7.18	+								
Social-Emotional Coping	within											
	L	.0003	2.01	+								
	between											
	L	.02	5.08	+								
COR-Pupil	between					Not analyzed				Not analyzed		
	xp2	.04	3.79	(no graph)								

GRAPH SE 1
AUSTIN II Between-Class

Y-Axis (Criterion) SSD post
X-Axis (Predictor) SSD pre
Grouped on GMG-3

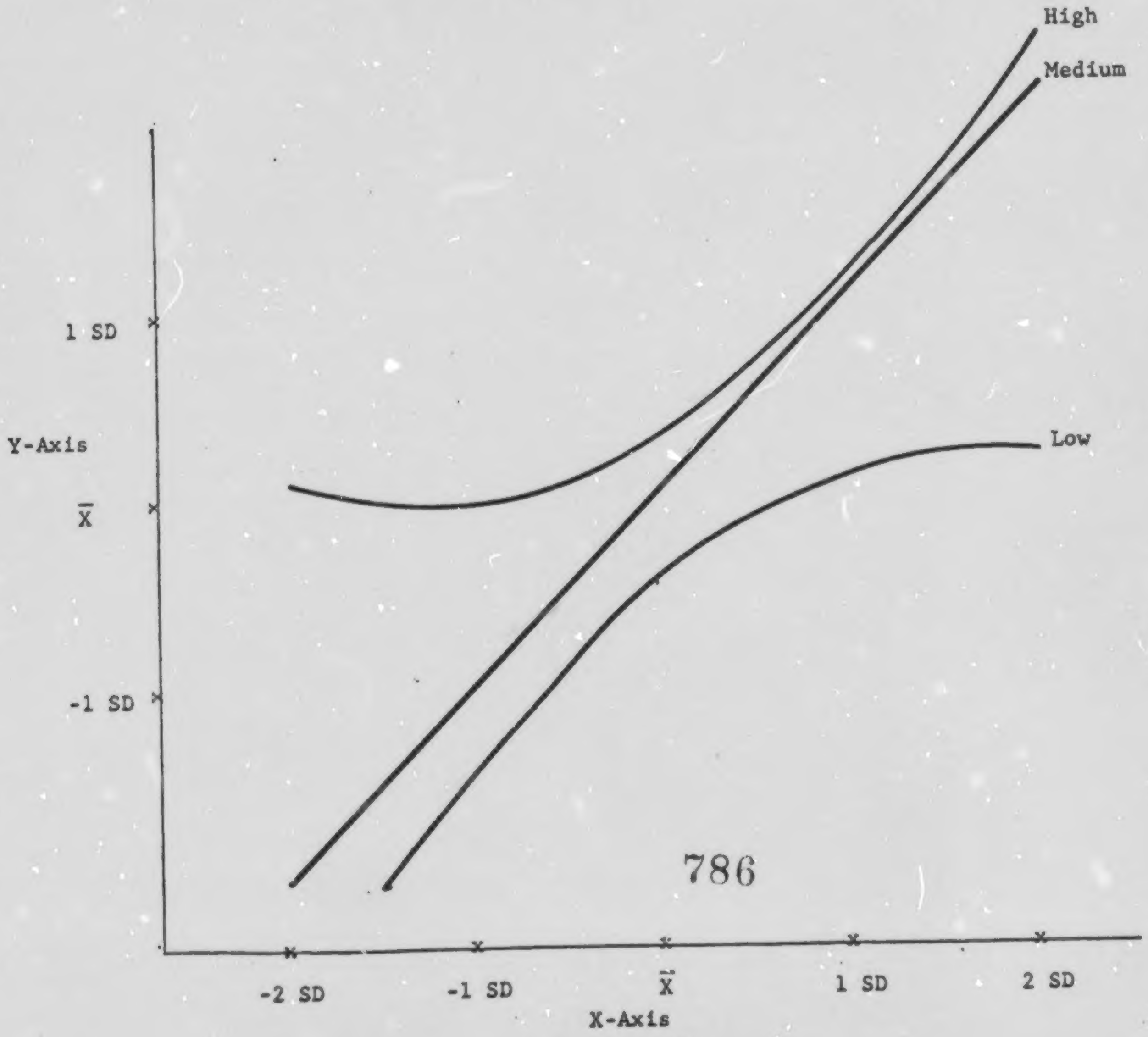
Effect SSD-Q*GMG
Year and site Austin II
Stage IV
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at



GRAPH SE 2

Y-Axis (Criterion) Self-Est (P-H) Post
X-Axis (Predictor) Self-Est (P-H) Pre
Grouped on BRS-OR (cop)

Effect Pre-L x Pupil-Q
Year and site Austin 1
Unit of Analysis Between-Class
Pretest controlled yes

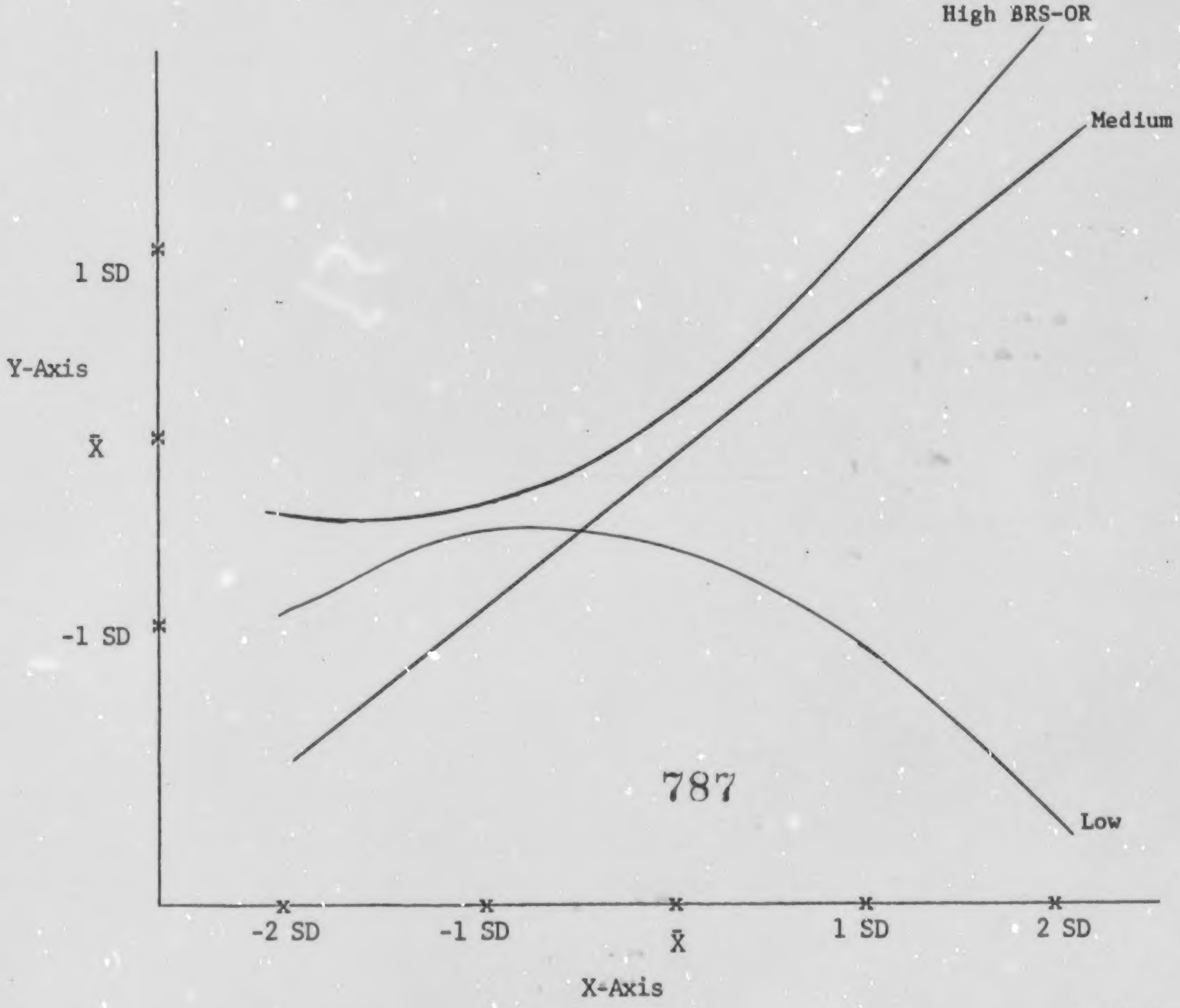


786

GRAPH SE 3
KENTUCKY I Between-Class

Y-Axis (Criterion) PH post
X-Axis (Predictor) PH pre
Grouped on BRS-OR

Effect SSD-Q*BRS-OR
Year and site Kentucky
Stage IV
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at



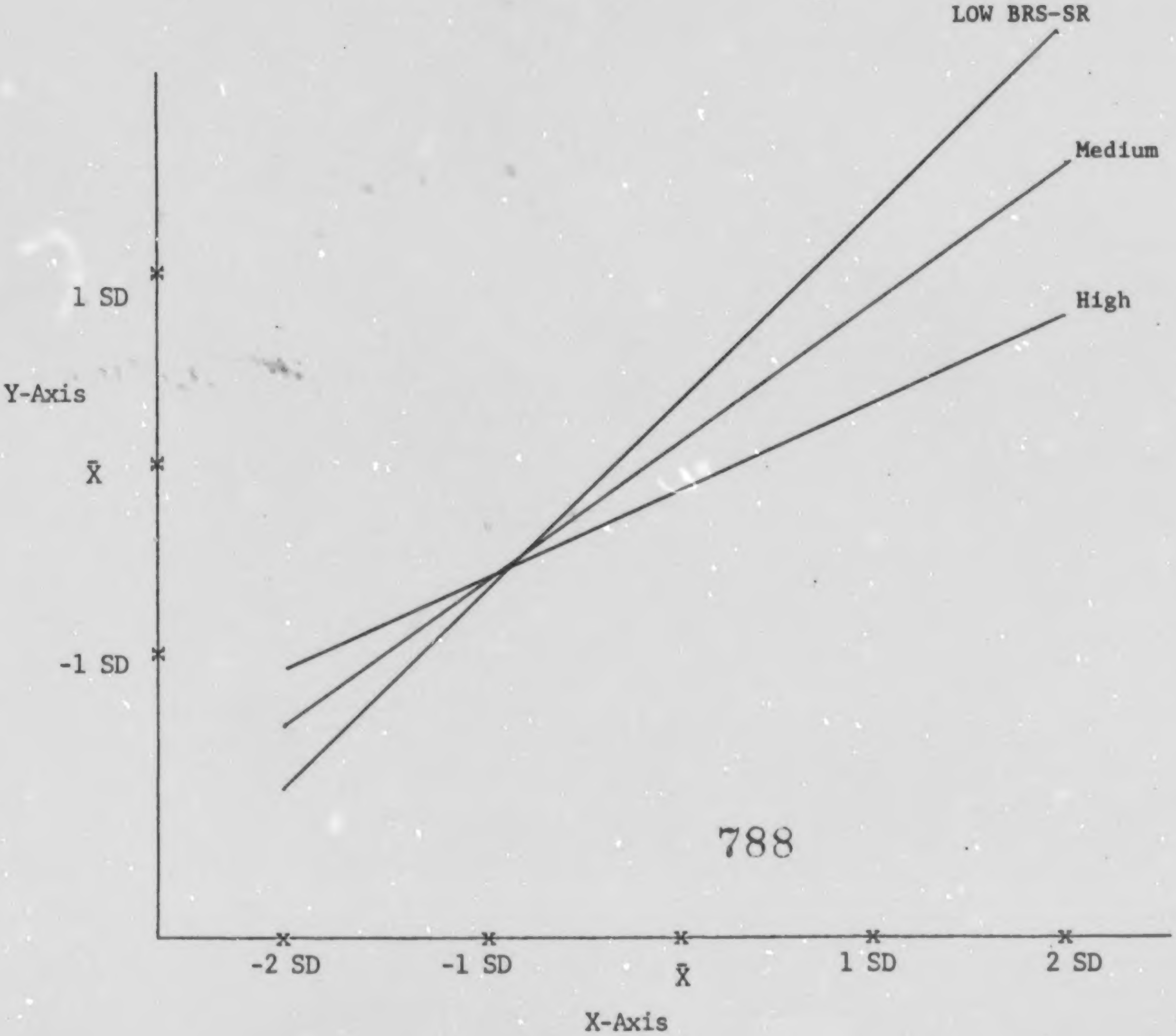
787

GRAPH SE 4

Austin II Between-Class

Y-Axis (Criterion) SSD post
X-Axis (Predictor) SSD pre
Grouped on BRS-SR

Effect SSD*BRS-SR
Year and site Austin II
Stage IV
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

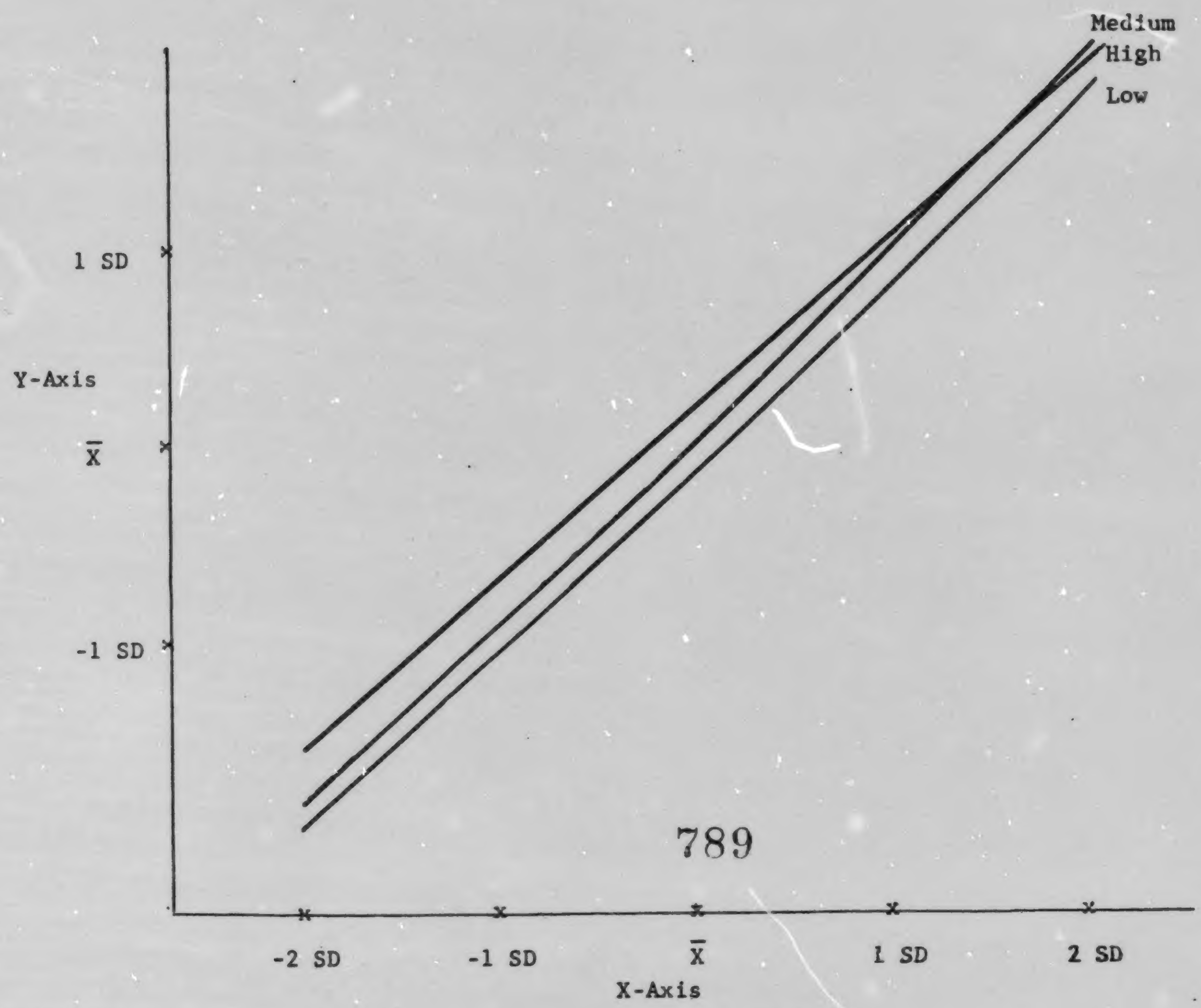


788

GRAPH SE 5

Y-Axis (Criterion) Self-Est (P-H) Post
X-Axis (Predictor) Self-Est (P-H) Pre
Grouped on SSC-Att

Effect Pre-L x Pupil-Q
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled yes

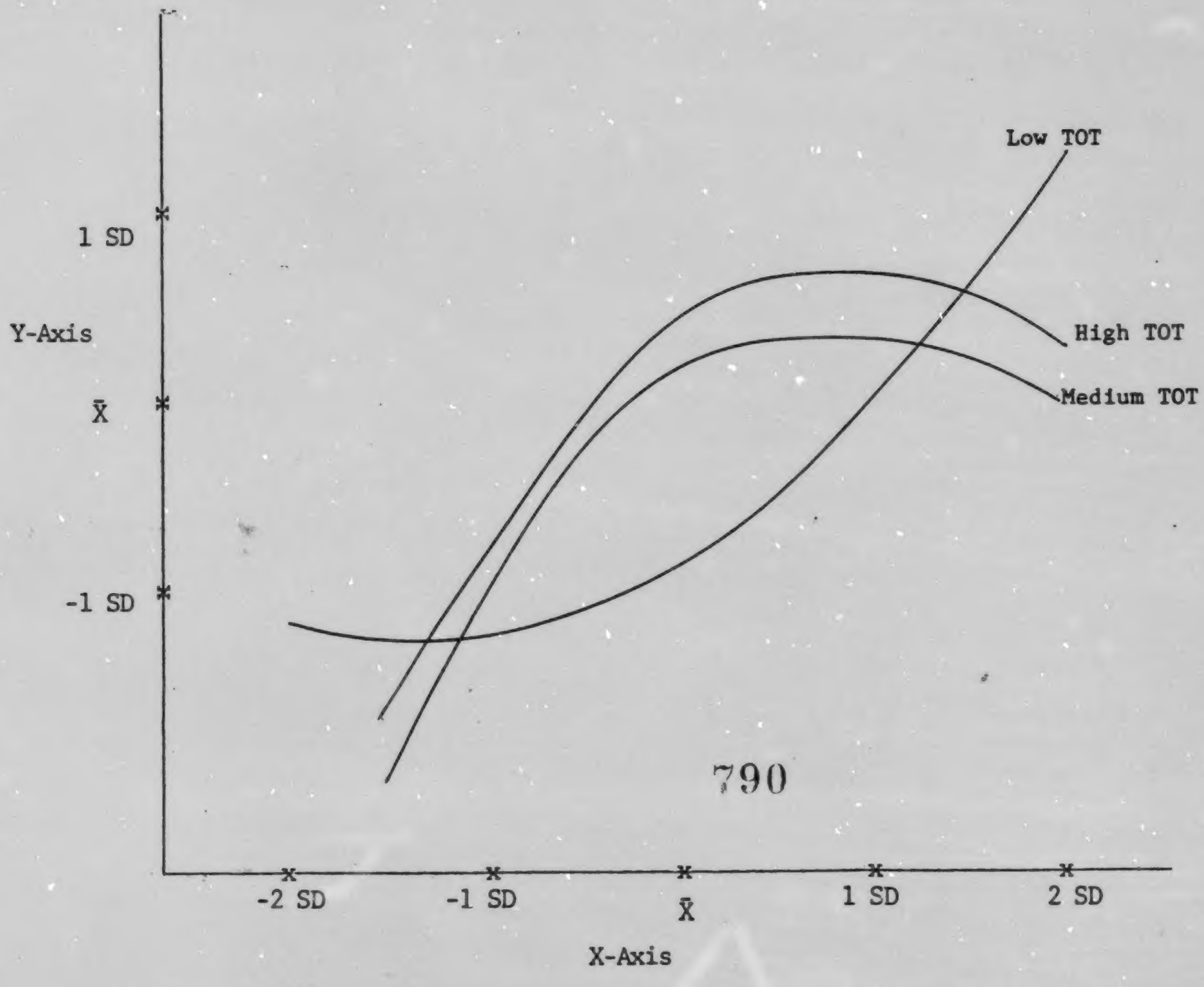


789

GRAPH SE 6
Kentucky I   Between-Class

Y-Axis (Criterion) PH post
X-Axis (Predictor) PH pre
Grouped on TOT

Effect PH-Q*TOT
Year and site Kentucky
Stage IV
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

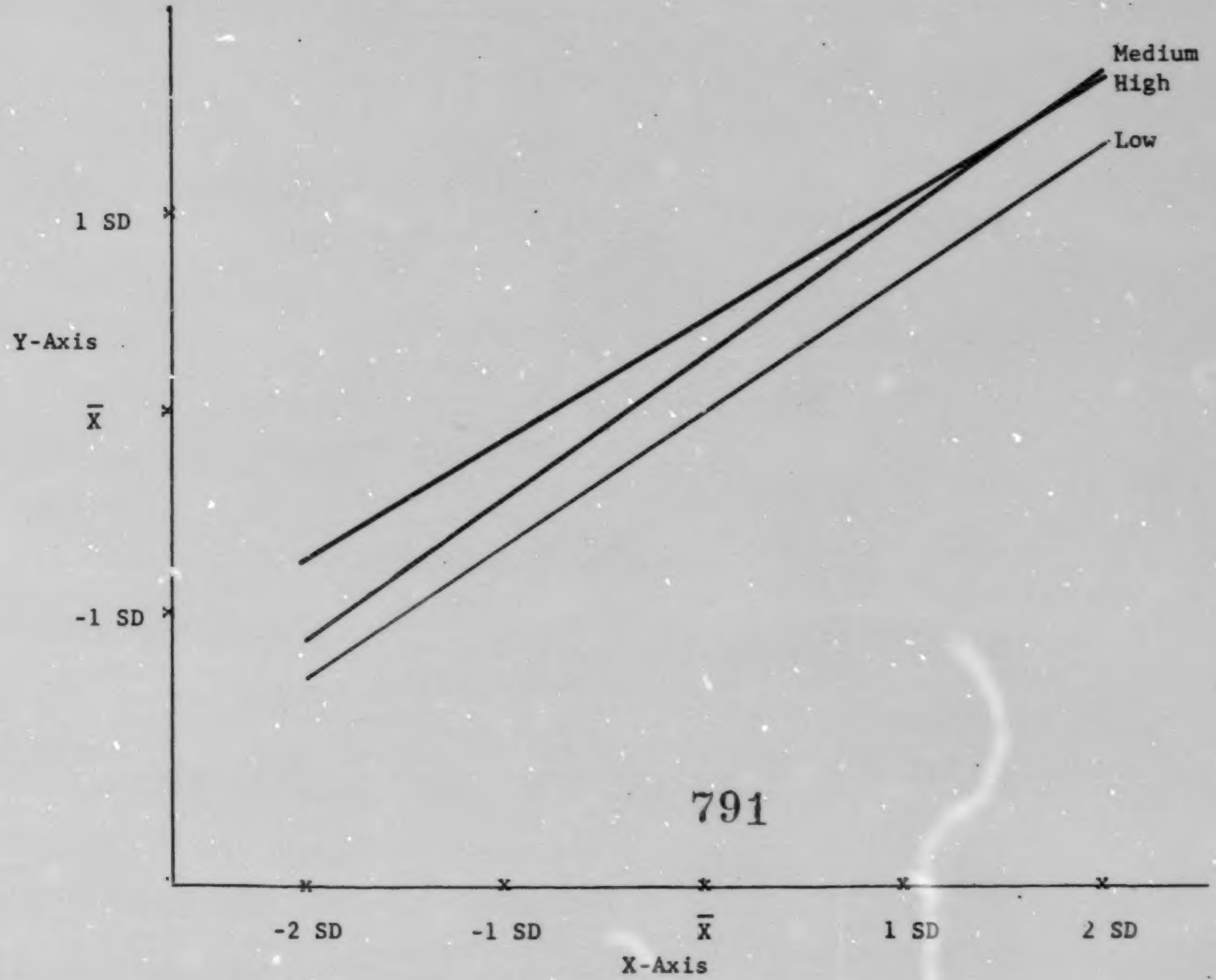


790

GRAPH SE 7

Y-Axis (Criterion) Self-Est (P-H) Post
X-Axis (Predictor) Self-Est (P-H) Pre
Grouped on Acad Cop

Effect Pre-L x Pupil-Q
Year and site Austin I
Unit of Analysis Within-Class
Pretest controlled yes

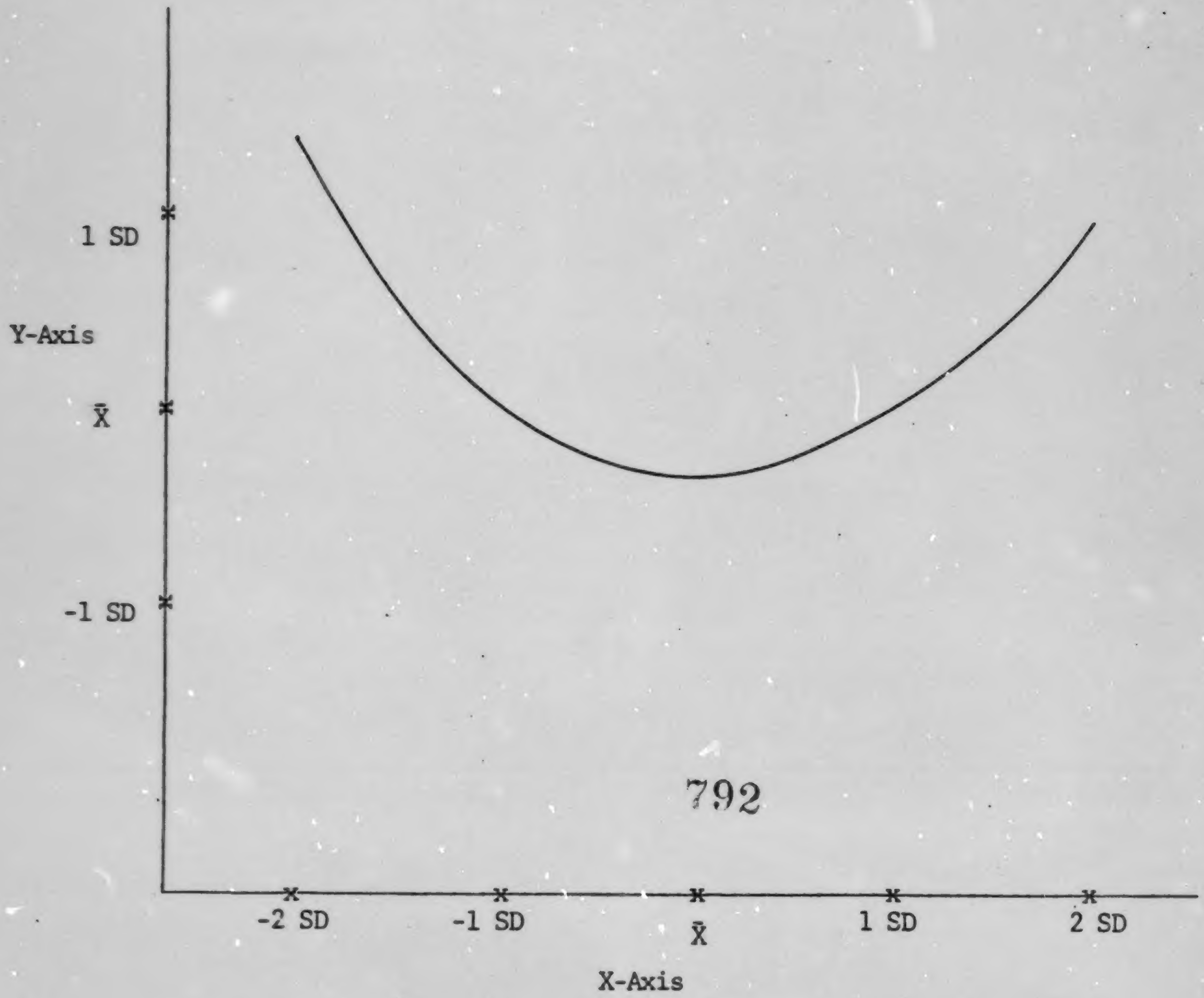


791

GRAPH SE 8

Y-Axis (Criterion) PH-regressed change
X-Axis (Predictor) Acad. Coping
Grouped on

Effect Acad. Coping-Q
Year and site Kentucky
Stage IV
Unit of Analysis Between
Pretest controlled Yes
Multiple graph; X at

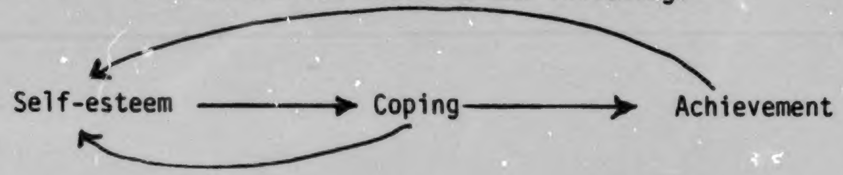


Some Summary Observations

One important conclusion from the results presented in this chapter is that learning is influenced much less by the behavior of other students than by the student's own characteristics and behavior. COR-Pupil, which measures the behavior of classmates, only showed significant effects on student gains in the Austin I site. Furthermore, it affected change in only three criterion measures (attitude toward school, attitude toward life, and self-esteem), accounting for a smaller percent of the variance than did individual predictors. Overall class behavior had little effect on individual student learning.

On the other hand, student characteristics and observed behavior were strongly predictive of regressed gain in each criterion measure. For a detailed account of how each student characteristic affected each criterion, the reader is referred to the body of this chapter.

There appears to be an interactive relationship among achievement, self-esteem, and coping. Each of these variables has a strong effect on gain in the other. When achievement is used as a criterion, the results of multiple regression indicate that self-esteem may be affecting achievement through the medium of coping skills. Students with positive self-esteem have the self-confidence, initiative, and persistence to engage in learning and acquiring effective coping skills. Effective coping skills also contribute to enhancement of one's self-esteem and to success in academic performance. Similarly, success in academic achievement leads to more positive feelings about the self, and since such mastery involves practice in coping, it also enhances the students' coping skills. An illustration would be the following:



Another important finding about achievement gain was evident in the interaction effects of achievement pre-test level with other student characteristics. Regardless of the predictor (attitude, coping, or self-esteem), initial achievement needed to be high before such student characteristics had a positive significant effect on achievement gain, such potentially helpful resources did not effect gain in achievement if the students did not have the prerequisite academic skills to learn the material presented. These findings emphasize the need for teachers to make an early assessment of each students academic skills -- as the teachers in this study already realized. Students lacking in the prerequisite skills need instruction that helps them acquire those skills, or they will not profit from the subsequent year of schooling.

The results of this study also point out the important effects of time on task, and good coping behavior, on achievement, coping skills, attitude toward school and life, and self-esteem. Achievement by itself, showed little effect on school or life. The characteristics which consistently fostered such genius, in two or more samples, were coping skill, attitude toward self, and attitude toward life. Here again, there appeared to be an interactive cycle of effects between attitudes and coping effectiveness. This cycle was chiefly portrayed by the interaction findings involving these variables. The effects of coping and self-esteem on attitude change, however, were more powerful when the initial achievement was high.

Finally, these results portray the complexity of the relationships among the interactive student variables involved in learning. Teachers need to be aware of the varying skills, needs, and attitudes of their students in order to be effective. There are no simple answers or cookbook formulas for effective learning, for all students. Student characteristics interact with each other in several ways to affect learning. One of the teacher's major responsibilities is to assess individual students' needs, skills, and attitudes, and to provide as much appropriate, tailored instruction as is feasible, to help each student in the particular ways he or she needs most.

THE INTERPLAY OF TEACHER AND STUDENT CHARACTERISTICS THAT AFFECT STUDENT LEARNING, ATTITUDES, AND COPING SKILLS

Final Report of the Teaching-Learning Interaction Study

(TLIS)

Volume III

Robert F. Peck, Principal Investigator
with
Ronald B. Fox
Donald J. Veldman
Glen C. Payne
M. Guadalupe Cisneros-Solis

The Research and Development Center for Teacher Education
The University of Texas at Austin

October 1982

This is a final report on a study supported in part by the National Institute of Education ~~Contract NE-C-00-3-0066.~~ The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

Please do not quote or cite this report without the written permission of the project director.

TABLE OF CONTENTS

Volume III

Introductory materials i

Table of Contents i

CHAPTER VIII -- Findings from the Study VIII-1

What the Findings Say About Each Proposition VIII-1

Figure VIII-1: The Findings on the Interconnections of Teacher and Student Characteristics, Classroom Behavior and Student Outcome VIII-27

Propositions VIII-29

APPENDIX A -- R & D Report No. 2372

An Evaluation of Instruments Measuring Cognitive, Affective and Coping Skills of School-Age Children . A-1

Title page A-1

Skill variances A-5

Instruments Measuring Cognitive Skills A-7

Instruments Measuring Affective Skills A-15

Instruments Measuring Miscellaneous Skills A-23

References for Student Search A-31

Miscellaneous A-35

Affective Domain A-39

Overall Listing of All Instruments Surveyed A-49

APPENDIX B -- R & D Report No. 5058

A Simulation Study of Four Methods Used to Analyze Change B-1

Title page B-1

Abstract B-3

Text B-5

References B-49

APPENDIX C -- References C-1
Publications from the Teaching-Learning Interaction Study C-3
References C-11

APPENDIX D -- Instuments D-1
Table of Contents D-3
Student Measures D-5
Student Biographical Form D-5
Student Sentence Completion D-9
Piers-Harris Children's Self-Concept Scale D-21
(Student Self-Description)
How This Class Makes Me Feel D-27
Behavior Rating Scale D-29
School Sentiment Index D-33
Student Evaluation of Teaching D-41
Teacher Measures D-43
Teacher Biographical Form D-43
Adjective Self-Description D-45
Student Description D-47
Concerns Questionnaire D-49
Teacher Reaction Form D-55
Class Checklist D-57

APPENDIX E -- Annotated Bibliographies E-1
APPENDIX F -- R & D Report No. 2380
The Impact of Teacher and Student Characteristics Student Self-Concept, Attitudes Toward School, Achievement, and Coping Skills: A Review of Research F-1
Title page F-1
Text F-3
References F-41

CHAPTER VIII

FINDINGS FROM THE STUDY

The first way of presenting the findings is to take up the propositions which were stated at the outset and see how the data bear on each of those propositions. This approach does not take all of the findings into account. Many of the specific, substantive relationships which have been found need further discussion. This summary, by proposition, provides one kind of overview of the entire set of phenomenon whose relationships have been investigated.

What the Findings Say About Each Proposition

1. Student entry levels of achievement, attitude, self-esteem and coping skill will be positively intercorrelated.

Table P-1 demonstrates that this proposition was confirmed in all of the three samples. The several student characteristics which were self-reported were, understandably, correlated to a substantial degree. Self-esteem was substantially related, not only to attitudes toward school and life, but to self-displayed coping skill, to objective achievement, and to peer-rated academic coping skill. Peer-rated coping skill, being more reliable and probably more valid than a single self-appraisal, showed the strongest correlation in all samples with measured achievement. Even self-rated academic coping skill showed a modest but significant correlation with objective achievement, particularly in Austin I and Kentucky.

There was nothing approaching a single, unitary cluster of extremely high correlations, even among the self-report measures, to suggest a simple halo effect.

The evidence in Table P-1, and in 2A and 2B as well, tends to confirm the proposition that these characteristics have some degree of genuine independence of one another, but that they also have significant effects on one another.

2. Student entry level on each of these characteristics will positively influence change (regressed gain) on each student outcome.

Tables P-2A and P-2B confirm this proposition in all three samples. Table P-2B shows the precise relationship of specific predictors to gain on each outcome measure.

For example, change over the year in achievement test score in Austin I was effected by initial levels of general attitude toward life, general coping skill (self-described), and by academic coping skill as described by classmates. In the between-class analysis, the relationship was curvilinear between initial coping skill and later achievement gain. There was also a curvilinear relationship between initial, peer-rated coping skill and achievement gain which varied according to the classes' initial level of achievement. General attitude had a linear, positive effect on achievement gain but this too was qualified by the initial achievement level of the class. No such effects of any other characteristics on achievement gain were found in the between-class analysis of the Austin II sample, however; and no analysis was feasible in Kentucky because of the grade difference in the tests.

In the within-class analysis, achievement gains were significantly affected by peer-rated coping skill at the beginning of the year, in both Austin samples. In Austin I, initial, self-described general coping skill had a linear effect on achievement gain which varied according to the student's entering achievement level. Self-esteem had a similar effect on achievement gain, in the same pattern. In Austin II, achievement gain was also affected by initial attitude toward school. In Kentucky, achievement was significantly affected by initial level of peer-rated coping, by self-esteem, by self-rated academic coping skill, and by general coping skill (with a quadratic component in the last case). One effect that seems generalized across all samples is the effect of initial level of peer-rated academic coping skill on subsequent gain in achievement over the school year. This appeared in the within-class analysis in all three samples, and in one of the two Austin samples in the between-class analysis. This is not a surprising finding. It simply confirms what many previous studies have found, that peer judgments are a reliable estimate of actual student behavior. These findings indicate that they are significantly valid, as well, in forecasting subsequent achievement gains.

Even the self-description of general coping skills, by the sentence completion instrument, showed this kind of inferential validity by the effects it demonstrated in both between- and within-class analysis in Austin I, and in the within-class analysis in Kentucky. However, this effect did not appear in the Austin II sample, which probably demonstrates that the validity of this very limited kind of self-report instrument is more susceptible to situational variation than are pooled ratings by classmates. A similar reading of Table P-2B can be made for each of the other criteria. For example, gain in self-esteem over the year was positively affected by the initial level of achievement in all three samples, in the within-class analysis. This same positive effect was found in the between-class analysis in Austin II, though not in Austin I.

To sum up, there was a substantial frequency of significant effects which tend to confirm the general idea in Proposition 2. It is equally apparent that the proposition is not confirmed in a good many other specific instances, whether due to imperfections of measurement or due to the overriding effect of situational circumstances from sample to sample which do not always lend to a simple connection between the predictor variable and the outcome.

2a. Many of the relationships between student entry characteristics and student outcomes will be curvilinear.

Tables P2A and P2B demonstrate that curvilinear effects did, indeed, appear with more than chance frequency. The relationship between entry level on one characteristic and regressed gain on another took effect only above a certain threshold level on one or the other variables. Another way to look at the same data is to see that the relationship held true for some students but not for all. Detailed examples of relationships like this are spelled out in the text and tables in Chapter VII.

3. Student entry level on each characteristic will positively affect school attendance.

In the two samples in Austin where attendance figures were attainable, this proposition was partially confirmed. Achievement level at the beginning of the year significantly predicted attendance during the year, and so did self-esteem, in both samples. In Austin II, peer-rated coping skill was an additional predictor of attendance.

3A. A frequency of attendance will have a positive effect on student outcomes.

Table P-3A shows that in the two Austin samples where this proposition could be tested it was confirmed to a considerable degree. Specifically, attendance showed the expected positive relationship to gain in achievement and change in self-esteem, in both samples. In Austin II, the one place where peer-rated coping skill was assessed at the end of the year as well as the beginning, change on this measure also showed a positive effect of attendance. Coping on the other outcome measures either were not analyzed (due to an oversight) or showed no attendance effect.

4. Student entry levels will positively affect time-on-task behavior in class.

Table P-4 shows that time-on-task behavior was significantly predicted by initial level of general coping skill in all three samples. In two of the three samples it was positively predicted by general attitude at the beginning of the year. In two other samples it was significantly effected by initial attitude towards school. Overall, there was substantial evidence in support of the proposition. It is equally important, however, to note the variation from sample to sample in the nature of the variables that predicted time-on-task behavior and in the strength of their predictive power.

5. Student entry levels will positively affect classroom behavior.

When the measure of classroom behavior was the observers' rating of pupil conduct (COR-PUPIL), the proposition was not confirmed in Austin I or Kentucky, although it was substantially confirmed in the Austin II sample. The one factor that showed a significant relationship to pupil behavior, in the two samples where it could be tested, was the effect of initial level of achievement of the class on the subsequent work-oriented behavior of the class. Classes with higher mean achievement scores at the outset tended quite strongly to spend more of their time on task, with a cooperative, willing attitude than did the classes with lower levels of entering achievement (Table P-5A).

When the criterion was teacher ratings of individual student coping behavior there was more systematic support for the proposition. In all three samples, students with relatively high self-esteem showed better academic coping behavior over the year than those with lower self-esteem, relative to the class mean. Attitude toward school showed the same relationship to academic coping skill and it also showed a significant relationship to subsequent social-emotional coping in Austin I and Kentucky, although not in Austin II. Entering achievement level had the strongest power of all to predict subsequent academic coping behavior, in a positive direction, in all three samples. General coping skill predicted teacher ratings of academic coping and social coping in the Austin I sample but not in the other two samples. General attitude showed no relationship to individual classroom coping behavior in any sample (Table P-5B).

6. Teacher age and experience will correlate positively with desirable personal traits.

As Table P-6 illustrates, there was very little support for this proposition in the findings. In Austin I, older teachers were less anxious, as anticipated, and they described themselves as more efficient, at a near-significant level. However, more experienced teachers gave themselves lower scores on efficiency. Social introversion did correlate negatively with experience. Otherwise, there were none of the expected correlations. In Austin II, experienced teachers were less anxious and more efficient, by their own account, to a near-significant level. No other meaningful relationships were found. In Kentucky, the only significant correlation was a negative one between self-rated attractiveness and teacher age. All in all, there was not enough replication to support the hypothesized relationship.

7. Teacher age and experience will positively affect teaching behavior.

There was a meaningful number of significant correlations in the Austin I and Kentucky samples, but in the opposite direction from what was expected. Older teachers were rated lower on kindly-understanding behavior in both samples. In Kentucky, moreover, older teachers were rated substantially less well organized and less stimulating. Length of professional experience showed no significant relationship to teaching behavior, except for one negative correlation with kindly-understanding behavior in Austin I (Table P-7).

8. Teacher age and experience will positively affect class behavior.

Except for a fairly strong negative correlation between teacher age and the orderliness of pupil behavior, there were none of the anticipated positive relationships between teacher age or experience and class behavior (Table P-8).

9. Teacher age and experience will positively affect student attendance.

There were no significant positive relationships to support this proposition, as Table P-9 demonstrates although there were also no negative effects.

10. Teacher age and experience will positively affect student time-on-task behavior.

There were no significant effects in any of the three samples to support this proposition.

11. Teacher age and experience will positively affect student outcomes.

Only two of the 18 tests of this proposition in the three samples showed any significant effect of teacher experience on student outcomes and one of those was in a contrary direction. Table P-11 shows that the data did not support this proposition in any sample.

12. Positive teacher traits will positively affect teaching behavior.

In Austin I, there was a fairly substantial set of relationships between self-described teacher characteristics and teacher behavior. About half of these relationships were curvilinear. A positive attitude was related to kindly-understanding teaching, and particularly to stimulating-inventive teaching. In the latter case, average to above average scores on attitude were more closely related to stimulating teaching than were extremely high attitude scores. The scale that ranges from pleasant to abrasive behavior showed the strongest effect on teaching behavior, in a curvilinear fashion. Moderate scores on this scale marked the kindly and systematic teachers to a much greater degree than did extremely high or low scores. Self-rated attractiveness proved negatively related to all three kinds of desirable teaching behavior particularly stimulating-inventiveness (Table P-12).

In the Austin II and Kentucky samples, there were no significant findings whatever to support this proposition.

13. Positive teacher traits will positively affect class behavior.

Table P-13 demonstrates that there were no significant relationships at all in Austin II or Kentucky and only one in Austin I. Thus, the proposition was not confirmed.

14. Positive teacher traits will positively affect student attendance.

Teacher individuality did show a curvilinear relationship to student attendance in the Austin I sample, although this is not a large enough proportion of the tests performed to be meaningful. In the Austin II sample, self-rated efficient teachers had lower student attendance. In Kentucky, no attendance data were available so the proposition could not be tested. All in all, this proposition was not supported (Table P-14).

15. Positive teacher traits will positively affect student time-on-task behavior.

In Austin I, teachers who described themselves as relatively more abrasive, had classes with higher time-on-task scores. In Austin II, teachers who described themselves as efficient and moderately introverted also had higher time-on-task. In Kentucky, however, the only significant effect was contrary to the prediction: teachers with a positive attitude had lower time-on-task classes. As in Austin I, teachers who were somewhat more abrasive than average had greater time-on-task. Overall, the proposition not only was not supported in an affirmative sense but it was directly contradicted by some of the findings. In any case, there were not enough significant relationships to provide firm evidence for the proposition, either way (Table P-15).

16. Positive teacher traits will positively affect student outcomes.

In the one sample where this analysis was carried out, Austin I, there was a meaningful proportion of significant findings. Not all of them were in the expected direction, however. Positive teacher attitude showed a positive effect on class gains in self-esteem, in attitude toward school, and in general attitude. Teacher efficiency also showed a positive effect on self-esteem gain and general attitude gain. Teacher introversion showed a positive effect on achievement gain, and also on self-esteem in a curvilinear fashion. Self-rated attractiveness showed a negative relationship to class achievement gain, and a curvilinear relationship to general coping that favored teachers who did not give themselves extremely high scores for attractiveness. So far as the available evidence goes, the proposition is partially supported by the evidence but partially contradicted, as well (Table P-16).

All in all, self descriptions such as those obtained with the Adjective Self Descriptions instrument have shown few of the relationships which they logically should have if such descriptions were valid portraits of the teachers. Unquestionably, the relative transparency of the instrument renders it susceptible enough to social desirability effects to impair its validity, particularly for highly intelligent, self-critical and socially conscious people such as teachers tend to be.

17. Individual teaching behavior will show stability across time and subjects.

Tables 17-A, B, and C all supply strong confirmation for this proposition. When a set of 33 teachers were rated in two successive years by two independent teams of observers, the correlation on the kindly-understanding factor was .77; on systematic-organized, it was .78; and on the stimulating-inventive factor it was .53. The same teachers, rated by two different classes of students in different subject matter classes, in two successive years, had a SET correlation of .68.

Table P-17B demonstrates that adult observers agreed with student evaluations to a very substantial degree, also, in all three samples.

Table P-17C demonstrates that there was extremely high agreement among two to four raters, who observed and rated the teachers on two different occasions, separated by several weeks. The coefficients, ranging from .91 to .99, indicate that the teachers tended to behave in a very consistent fashion from one class to another. Taken together with the evidence of consistency across a two-year span, this seems a quite impressive demonstration of the continuity and stability of individual behavior, when it is assessed at a high enough level of generality to rise above the moment-to-moment or day-to-day variations in specific, "phenotypic" representations of the more generalized, "genotypic" attitudes and behavior patterns represented by Ryan's factors.

18. Positive teaching behavior will positively affect class behavior.

In all three samples, this proposition was strongly confirmed. Allowance must be made for the fact that the rating of pupils' classroom behavior was made by the same adult observers who rated the teachers, on the same occasions. Some degree of halo effect probably should be assumed. Nonetheless, the very high degree of agreement across independent observers does suggest that this strong relationship is not simply an artifact of the rating process. It reproduces the strong correlations which Ryan found in his earlier work (Table P-18).

19. Positive teaching behavior will positively affect student attendance.

Except for a positive effect of systematic-organized teaching on class attendance in Austin I, there was no other evidence to support this proposition. Judging by all of the evidence and student attendance in this study, attendance is mainly determined by factors outside the control or influence of the teacher (Table P-19).

20. Positive teaching behavior will positively affect student time-on-task behavior.

Table P-20 shows that the proposition was confirmed for all three factors of teaching behavior in the Austin II sample; for systematic-organized behavior in the Austin I sample; but in no case in Kentucky. In some times and places this relationship was definite and strong; in others it was not observed.

21. Positive teaching behavior will positively affect student evaluations of the teacher.

This proposition was quite solidly confirmed in all samples, and with two measures of student evaluation. The relationship of observed teacher behavior to student evaluations was particularly strong in Kentucky. In every sample, kindly-understanding teaching had the relatively strongest impact on student evaluation (Table P-21).

The How-This-Class-Makes-Me-Feel instrument, used only in Austin II, showed the most positive effects from stimulating-inventive teaching, followed by systematic-organized and kindly-understanding behavior. The multiple correlation of HOWCL with the three teacher factors was .52, accounting for a substantial 27% of the variance.

22. Students' time-on-task behavior will correlate positively with students' individual coping behavior.

Table P-22 demonstrates support for the proposition in all three samples with regard to academic coping skill, and in two of the three samples for social-emotional coping skill. The size of the relationships was modest. Differences in observed time-on-task, it might be said, formed only one element in the teachers' judgment of individual students' coping skills.

23. Students' time-on-task behavior will positively affect student outcomes.

Contrary to expectation, time-on-task behavior did not show a significant relationship to gain on the various outcomes in the Austin I sample, when class mean scores were the unit of analysis. There was a substantial number of relationships in the other two samples in this kind of analysis, however, and in all three samples when the within-class analysis was used. This is probably because the within-class differences greatly exceeded the between-class differences. Table P-23 shows the specific outcomes that were related to student attention to tasks. In all three samples, at least one of the two analyses showed an effect of time-on-task behavior on achievement gain, on attitude towards school, and on change in general attitude. Self-rated coping skills of a general kind also showed this effect. In the Austin II sample, where it was possible to assess a change in peer-rated academic coping skill there was a substantial effect of time-on-task behavior on coping skill gain, in both the between-class and within-class analyses. Overall, there was substantial evidence to support the proposition.

24. Individual classroom coping behavior will positively affect student outcomes.

Tables P-24A and B demonstrate that the teacher ratings of individual coping skills, both academic and social-emotional, showed substantial relationships to regressed gain on all of the cognitive and effective outcomes. The proposition was definitely confirmed, in a generalized way.

25. Positive class behavior will positively affect class outcomes.

Table P-25 demonstrates that the proposition was confirmed for four of the outcomes in the Austin I sample. No significant effects were found, however, in the Austin II sample, the other one which was analyzed. Differences between the two sets of students in successive years apparently were great enough so that factors which were not measured in this study made a substantial difference in the degree to which observed pupil behavior related to class outcomes.

26. Positive teaching behavior will positively affect class outcomes.

This proposition could only be tested by a between-class analysis. It was significantly supported in all three samples, particularly in the Austin I sample. Except in Kentucky, where classes could not be compared on achievement measures, class achievement gains were positively affected by teacher kindly-understanding behavior. In addition, in Austin I achievement gain was positively affected by stimulating-inventive teaching behavior, and in Austin II it was positively affected by systematic-organized teaching. Table P-26 shows all of the significant relationships which were found.

27. Positive student evaluations of the teacher will positively affect student outcomes.

Table P-27 shows that the final evaluation of the teacher by the class had a substantial relationship to student regressed gains in all samples, for most but not all kinds of outcomes. As would logically be expected, attitude toward school was most closely related to the evaluation of the teacher. General attitude was also universally related to evaluation of teacher in these samples, as was change in general coping skill. Gain in self-esteem was substantially related to student evaluation of teacher in Austin II and Kentucky.

In the one place where it was administered, in Austin II, the How-This-Class-Makes-Me-Feel instrument showed a substantial relationship to change on all student outcome variables. All in all, the proposition was supported to a substantial degree.

28. The interaction of teacher characteristics with student characteristics will have a significant effect on student outcomes.

Table P-28 shows that there was a significant amount of supportive evidence in each sample, in either the within-class analysis, the between-class analysis, or both. The incidence and the strength of the relationships was sufficient to indicate that different kinds of students often did react differently to a particular kind of teaching, and that a particular kind of student reacted differently to different degrees of kindly, organized, or inventive teaching. Table P-28 shows the particular relationships that were discovered.

29. Higher student socio-economic status will positively affect student entry levels.

Table P-29 demonstrates that this proposition was substantiated to a significant degree for all characteristics except attitude towards school, in the Austin I sample, and almost as widely supported in the Austin II analyses. The entries in Table P-29 show that students who did not supply adequate information to classify their SES level were similar in all respects to low status children, as might be expected. In the general analysis of the Austin I sample the effects of ethnicity were partialed from those of socio-economic status. The results show that status had significant effects in the predicted direction no matter what the ethnicity of the students. The expected difference in achievement level according to SES was not found in the Kentucky sample, although the expected differences in self-esteem and coping skill were found. Thus, while there were at least some significant SES differences in student entry characteristics everywhere, particularly in self-esteem and peer-rated coping skill, it is evident that such differences cannot be assumed to be universal at all times, in all places. Each new class of students needs to be studied, it appears, in order to determine whether the customary SES differences actually occur in that class.

30. Higher student socio-economic status will positively affect individual coping behavior.

Table P-30 demonstrates that the expected differences did occur in both Austin samples but not in the Kentucky sample.

31. Higher student socio-economic status will positively affect student time-on-task behavior.

Table P-31 demonstrates that the proposition was true in the Austin I sample but not in the Austin II and Kentucky samples.

32. Higher student socio-economic status will positively affect student outcomes.

The proposition was supported by the evidence from the two Austin samples, as Table P-32 illustrates. Higher status children did tend to show more positive gains on many of the outcomes. In Kentucky, only two such social class effects were manifest. This finding may follow from the fact that there were few significant social class differences in Kentucky, to begin with, in the characteristics on which gain was assessed. The proposition that socio-economic has a relationship to student gains proves to apply in some but not all respects, and it varies greatly from one community to another.

33. The effects of teaching behavior on student outcomes will vary with student socio-economic status.

There were just barely enough significant findings in support of this proposition to be meaningful in the Austin I sample and in the Austin II beween-class analysis. There were no findings of this kind in the Kentucky sample, in either analysis. The specific places where teacher behavior did vary according to student SES are listed in Table P-33 and they are described in Chapter V. The effects of this kind were so scanty, however, that the most valid statement about this proposition would seem to be that there was very little important difference in the way teaching behavior affected students which was linked to their socio-economic status, for most students in most places. Although it is an indirect inference, this pattern of findings suggest that there was little subjective bias among these teachers in their behavior toward children of different socio-economic levels.

34. Student ethnic groups will be randomly assigned to teachers.

This issue arose only in the Austin samples. Table P-34 demonstrates that when the teachers were assigned to the three clusters defined in Chapter VI as "high, average, or low effectiveness," there was not a random sorting of students into their classes by ethnicity and entering achievement level. More often than chance, high achieving students tended to be assigned to teachers in the "high effectiveness" cluster, in both Austin samples. Fewer than expected Anglo students were assigned to teachers in the low cluster. Black students tended to be assigned more often than chance to average teachers and, in Austin II, considerably less likely to be assigned to teachers in the high effectiveness group. Chicano students were less likely than chance to be assigned to high teachers; most often to average teachers.

Since ethnicity was appreciably correlated with entering achievement in both samples, and since the results discussed in Chapters V and VI indicate that "low" teachers were actually more helpful to low-achieving students in numerous instances, this non-random assignment of students within the teacher teams does not seem to have been simply the product of prejudicial ethnic bias on the teachers' part. It seems to have followed the rationale the teachers explicitly used in grouping students by achievement level, for optimal instructional effect; in a number of instances, such non-random grouping did prove to have beneficial effects for minority students who were low-achievers.

35. Student ethnicity will affect entry levels.

Table P-35 demonstrates that this proposition was quite strongly supported by the evidence in both Austin samples. Achievement, in particular, showed this effect. Anglo students scored higher, on the average, than Mexican-American students, and both scored higher than Black students, on the average. In the general analysis of the data, pooling students across classes, when socio-economic status was controlled, a large part of the ethnic difference still appeared.

Peer-rated academic coping skill, showed the same pattern of ethnic differences as achievement. In the Austin II sample there was an interesting interaction between ethnicity and SES as these affected peer-rated coping skill. In the Anglo group, peer-rated coping skill went up as student status rose. In the Mexican-American group, this kind of correlation of coping skill with status appeared only in the range from middle to high SES. Differences between low and middle SES had no effect on the peer-ratings. In the Black group the relationship was curvilinear. Middle status Black children had the highest peer-rating for coping skill while both low and high status Black children had lower peer-ratings.

While the expected ethnic differences were quite marked in the case of achievement and peer-rated coping skill, it is equally important to observe that there were no significant ethnic differences on any of the attitudinal measures, such as attitude toward school or general outlook on life. Neither were there any ethnic differences in self-described coping skill, on either the behavior rating instrument or the sentence completion. Perhaps equally important, there were no ethnic differences in the Student Evaluation of Teaching. While students in minorty groups were less effective in their academic achievement, both objectively measured and in the perception of their classmates, they did not suffer in their own self-respect or in their attitude towards school or life. They had no subjective expectation of performing less adequately than the majority Anglo students, it would seem.

36. Student ethnicity will affect individual coping behavior.

Table P-36 demonstrates that in both Austin samples where this proposition could be tested, it was substantially confirmed. While it could be argued that such ethnic differences in teacher ratings could be the product of subjective bias on the teachers' part, the fact that these differences parallel the differences demonstrated in the achievement tests and peer-rating measures suggests that the teachers were probably realistic, rather than biased, in their descriptions of the individual children, regardless of their ethnicity.

37. Student ethnicity will affect student time-on-task behavior.

The conclusion tentatively drawn about proposition 36 seems to be modestly confirmed by the findings shown in Table P-37. The adult observers found that the Anglo children tended to spend more time-on-task than the Chicano or Black children in the Austin I sample. In Austin II, there was an ethnic difference which varied according to whether boys or girls were being observed.

38. Student ethnicity will affect student outcomes.

Only a within-class analysis was appropriate for this issue. In both Austin samples, the proposition was confirmed for achievement, general coping skill, and in Austin II, for peer and self-rated academic coping skill, as well. The differences were all in the same direction, with one exception. In Austin I, Mexican-Americans had even more positive gains in attitude than Anglo or Black students. Otherwise, Anglo students showed greater gains than Mexican-American or Black students, with Black students almost always showing the least improvement. Thus, even on characteristics where the students in the different ethnic groups did not differ at the beginning of the year, there were significant differences at the end of the year. It is important, however, to note the small size of these differences. They indicate a need for further effort to equalize outcomes; but the increment in the thnic discrepancy over the sixth grade was relatively small.

39. Student ethnicity will interact with teacher behavior in affecting outcomes.

The proposition did find support in the data on three outcomes in the Austin I sample; but there was no support for it in the Austin II data. Considering the small size of the effects in Austin I and the absence of effects in Austin II, it appears that teacher behavior did not have any dramatically different effects on student outcomes for students in the different ethnic groups.

40. There will be significant sex differences in student characteristics at entry.

There were substantial sex differences in all three samples, all favoring girls, in the within-class analysis. (Between-class analysis was not appropriate.) In all samples, girls had higher attitude and coping scores. In Austin I, in addition, the girls had slightly higher achievement scores. There was no sex difference in achievement in the other tow samples (see Table P-40).

41. There will be significant sex differences in classroom coping behavior.

In all samples, girls were rated higher than boys, by their teachers, both in academic coping behavior, and in social-emotional coping (see Table P-41).

42. There will be significant sex differences in time-on-task behavior.

In both Austin samples, girls showed a higher percentage of time-on-task behavior. In Kentucky, no sex difference was observed.

43. There will be significant sex differences in student gains over the year.

This proposition was substantially supported. In both Austin samples, girls showed (greater gains in achievement test scores and they showed more positive change than boys i.e. attitude toward school. Table P-43 shows the same gains in school and general attitude, and in general coping skill, in Austin I and Kentucky. In Austin II, girls gained more than boys in peer-rated coping skill.

Thus, the girls not only started out ahead of the boys, in many ways; by the end of the year they were still further ahead.

Figure VIII-1 summarizes the findings on the forty-three propositions. There was confirmation in all samples for the temporarally sequential connectedness of student entry characteristics to their classroom behavior (Propositions #1, 3, 4, 5; 22) and thence to student outcomes (#2, 22, 23, 24 in all samples; 25 was confirmed in one of two samples). Ethnic and SES differences in student entry characteristics were confirmed (#29, 35, 40). The modifying effects of student ethnicity and socio-economic status were confirmed in all samples for Propositions 36, 37 and 41; in some samples but not all, for Propositions 30, 31 and 42.

The assumption that ethnic groups would be randomly assigned to teachers (#34) in Austin was refuteed by the evidence (see, also, Chapter VI).

Ethnic effects on student gains were confirmed (#38). Sex differences in gains were contirmed (#43). Status differences in student gains were contirmed in the two Austin samples but not in Kentucky.

The proposed connections of teachers' personal traits to their classroom behavior was only partially confirmed (#12). Connections between those traits and teacher age and experience were not confirmed (#6); nor were the proposed connections between these self-descriptions and pupil behavior (#13, 14, 15). It seems likely that the ASD self-report instrument is too subject to social desirability effects to give a very accurate measure of the characteristics it is supposed to assess. However, the anticipated connection to student gains was confirmed (#16).

The proposed positive effects of teacher age and experience were either not confirmed (#8, 9, 10), or were actively refuted in some samples (#7).

The expected stability of individual teaching behavior across time and across classes was strongly confirmed in all samples (#17).

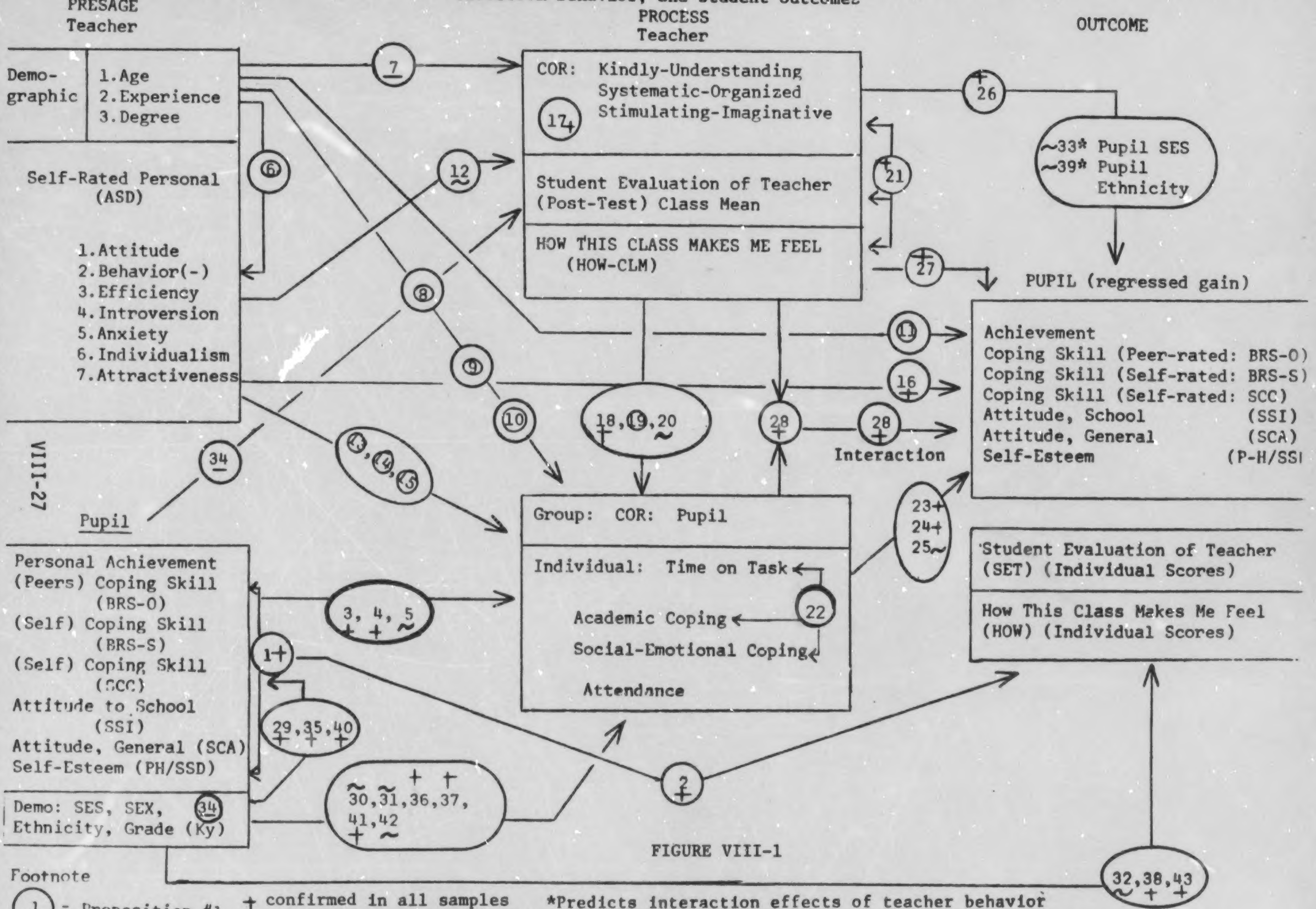
The anticipated effects of teacher behavior on pupils' behavior was confirmed (#18). The effects on student attendance were not confirmed (#19). Teacher effects on student time-on-task behavior were confirmed in Austin but not in Kentucky (#20). The proposed effects of teacher behavior on student gains were confirmed (#26, 27). These were modified in a relatively small but significant number of cases, by interaction between a kind of teaching behavior and a student entry characteristic (#28). Teacher effects were also slightly modified by pupil SES and ethnicity, in some but not all samples (#33, 39).

Overall, the major connections anticipated in the model were confirmed. The strength of the connections is unimpressive in many cases,however, even though they achieved unquestionable statistical significance yet it must be added that, except for a negative effect of teacher age, and two or three negative effects of self-described teacher traits, in the thousands of tests performed, none yielded significant negative results which were contrary to the predicted connections. The weight of the evidence favors these propositions that were wholly or partially confirmed.

In view of the undoubtedly limited validity of the machine-scorable, self-report instruments, despite their adequate reliability; in view of their weak relevance to the interactions between a given student and a particular teacher; and in view of the strong susceptibility of most of the outcome measures to influence by peers, other teachers, and out-of-school experiences during the year -- in view of these limitations, it seems not unlikely that the true relationships that lie behind this network are genuine, and that they are stronger than these weak, positive signals make it appear.

The chief purposes of this technical report on the Teaching-Learning Interaction study is to place in the ERIC archives a detailed description of its design, instrumentation, and empirical findings. Subsequent publications will undertake to synthesize and interpret the several kinds of findings that are contained in this report: the relizability and validity of the student and teacher measures; implications for student assessment in the practical setting of the school; implications for differential instructional practices with different groups of students; implications for teacher assessment; implications for teacher education; implications for human learning theory; and implications for future process-product research designs and methods, such as Medley drew in his 1977 review (Medley, 1977).

The Findings on the Interconnections of Teacher and Student Characteristics, Classroom Behavior, and Student Outcomes


PRESAGE
Teacher
Demo-graphic
1. Age
2. Experience
3. Degree
Self-Rated Personal (ASD)
1. Attitude
2. Behavior(-)
3. Efficiency
4. Introversion
5. Anxiety
6. Individualism
7. Attractiveness
Pupil
Personal Achievement
(Peers) Coping Skill (BRS-O)
(Self) Coping Skill (BRS-S)
(Self) Coping Skill (SCC)
Attitude to School (SSI)
Attitude, General (SCA)
Self-Esteem (PH/SSD)
Demo: SES, SEX, Ethnicity, Grade (Ky)
PROCESS
Teacher
COR: Kindly-Understanding
Systematic-Organized
Stimulating-Imaginative
Student Evaluation of Teacher (Post-Test) Class Mean
HOW THIS CLASS MAKES ME FEEL (HOW-CLM)
Group: COR: Pupil
Individual: Time on Task
Academic Coping
Social-Emotional Coping
Attendance
OUTCOME
~33* Pupil SES
~39* Pupil Ethnicity
PUPIL (regressed gain)
Achievement
Coping Skill (Peer-rated: BRS-O)
Coping Skill (Self-rated: BRS-S)
Coping Skill (Self-rated: SCC)
Attitude, School (SSI)
Attitude, General (SCA)
Self-Esteem (P-H/SSI
Student Evaluation of Teacher (SET) (Individual Scores)
How This Class Makes Me Feel (HOW) (Individual Scores)
Interaction
7
6
12
8
9
10
11
13, 14, 15
16
17
18, 19, 20
21
22
23+
24+
25~
26
27
28
28
34
34
1+
2
3, 4, 5
29, 35, 40
30, 31, 36, 37, 41, 42
32, 38, 43

VIII-27

FIGURE VIII-1

Footnote

① = Proposition #1

+ confirmed in all samples
~ confirmed in some samples
⑥ not supported
z contradicted

*Predicts interaction effects of teacher behavior with pupil SES and Ethnicity

PROPOSITION ONE
INTERCORRELATIONS OF STUDENT ENTRY CHARACTERISTICS

TABLE P1

	Attitude School	Attitude General	General Coping Self	Academic Coping Self	Academic Coping Peer	Achievement
Self Esteem (PH)	.39	.38	.36	.53	.25	.26
Attitude School (SSI)		.53	.45	.33	.20	.08
Attitude General (SSC-A)			.52	.34	.15	.07
General Coping - Self (SSC-C)				.35	.12	.07
Academic Coping - Self (BRS-SR)					.42	.30
Academic Coping - Peer (BRS-OR)						.41

AUSTIN YEAR 1

	Attitude School	Attitude General	General Coping Self	Academic Coping Self	Academic Coping Peer	Achievement
Self Esteem (SSD)	.48	.38	.35	.40	.23	.28
Attitude School (SSI)		.56	.52	.28	.21	.18
Attitude General (SSC-A)			.52	.21	.12	NS
General Coping - Self (SSC-C)				.28	.24	.13
Academic Coping - Self (BRS-SR)					.24	.14
Academic Coping - Peer (BRS-OR)						.36

AUSTIN YEAR 2

	Attitude School	Attitude General	General Coping Self	Academic Coping Self	Academic Coping Peer	Achievement
Self-Esteem (PH)	.39	.30	.24	.52	.28	.21
Attitude School (SSI)		.50	.37	.29	.20	.12
Attitude General (SSC-A)			.46	.25	.13	NS
General Coping - Self (SSC-C)				.24	NS	NS
Academic Coping - Self (BRS-SR)					.32	.20
Academic Coping - Peer (BRS-OR)						.42

KENTUCKY

Correlations shown are significant at $p < .01$

PROPOSITION TWO
EFFECTS OF STUDENT ENTRY CHARACTERISTICS ON OUTCOMES:

TABLE P2A
FREQUENCY OF SIGNIFICANT EFFECTS ON REGRESSED CHANGE

AUSTIN 1

	Within (34/120)[1]*				Between (11/120)*			
Outcome	P	P^2	XP	XP^2	P	P^2	XP	XP^2
CTBS	2	1	3			1	1	1
SSI	5				1		2	
PH	5			1	2			1
SSC-C	5	1	3		1			
SSC-A	5	1	1	1			1	

AUSTIN 2

	Within (43/192)*				Between (17/192)*			
Outcome	P	P^2	XP	XP^2	P	P^2	XP	XP^2
GMG	2							
SSI	3		1	1			1	
SSD	2						1	1
SSC-C	4				1			
SSC-A	5		2		5	1		
BRS-OR	6	1	2		1			
HOW-CL	7				6			
BRS-SR	6	1			1			

KENTUCKY

	Within (26/120)*				Between (13/80)*			
Outcome	P	P^2	XP	XP^2	P	P^2	XP	XP^2
Ach.	4							
SSI	2		1		2			
PH	3				1			1
SSC-C	4	1			4		1	
SSC-A	5	2	4		2	1		1

---

[1] 34/120 = 34 proportion of significant effects (p .05) out of 120 tested.

*A non-chance proportion of significant effects.

PROPOSITION TWO
EFFECTS OF STUDENT ENTRY CHARACTERISTICS ON OUTCOMES:

TABLE P2B
THE SPECIFIC EFFECTS

AUSTIN 1
(Within - Class Analysis)

Criterion	Predictor	Effect	P	% V
CTBS	SSC-C	XP	.00	.28
	BRS-OR	P^2	.00	.35
		XP	.00	.96
		L^+	.00	1.30
	PH	XP	.01	.23
		L^+	.00	.39
SSI	PH	L^+	.00	1.64
	SSC-A	L^+	.00	1.16
	SSC-C	L^+	.00	1.15
	BRS-OR	L^+	.00	1.40
	CTBS	L^+	.00	.61
PH	SSC-A	XP^2	.01	.32
	SSC-A	L^+	.00	.49
	CTBS	L^+	.00	1.65
	BRS-OR	L^+	.00	1.39
	BRS-SR	L^+	.00	1.36
	SSC-C	L^+	.00	.42
SSC-C	CTBS	XP	.00	.47
	CTBS	L^+	.00	1.19
	BRS-OR	XP	.01	.35
	BRS-OR	L^+	.00	3.44
	PH	P^2	.00	.65
	PH	XP	.01	.40
	PH	L^+	.00	3.05
	SSC-A	L^+	.00	1.30
	SSI	L^+	.00	2.83

Criterion	Predictor	Effect	P	% V
SSC-A	PH	P^2	.00	.24
		XP	.02	.25
		XP^2	.03	.24
	PH	L^+	.00	2.21
	SSC-C	L^+	.00	1.24
	BRS-OR	L^+	.00	2.27
	SSI	L^+	.00	2.25
	CTBS	L^+	.00	.95

AUSTIN 2
(Within)

Criterion	Predictor	Effect	P	% V
GMG	BRS-OR	L^+	.00	.42
	SSI	L^+	.01	.19
SSC-C	SSD	L^+	.00	.88
	SSC-A	L^+	.00	1.67
	BRS-SR	L^+	.00	2.21
	SSI	L^+	.00	3.42
SSC-A	SSD	L^+	.00	1.72
	SSC-C	L^+	.00	1.65
	BRS-OR	L^+	.01	.48
	BRS-SR	L^+	.00	1.01
	SSI	L^+	.00	3.12
	SSD	XP	.05	.29
	BRS-SR	XP	.07	.43
BRS-OR	SSD	L^+	.00	.65
	SSC-A	L^+	.00	.54
	SSC-C	L^+	.00	.79
	BRS-SR	L^+	.03	.26
	SSI	L^+	.00	.76
	GMG	L^+	.00	2.66
	SSI	XP	.03	.26
	GMG	XP	.04	.22
	BRS-SR	P^2	.03	.26

Criterion	Predictor	Effect	P	% V
HOW-CL	GMG	L^+	.01	.78
	SSI	L^+	.00	15.72
	SET	L^+	.00	14.95
	SSC-A	L^+	.00	8.63
	BRS-OR	L^+	.00	3.67
	BRS-SR	L^+	.00	6.38
	SSC-C	L^+	.00	5.25
BRS-SR	SSD	L^+	.00	4.51
	SSC-A	L^+	.00	1.36
	SSC-C	L^+	.00	2.00
	BRS-OR	L^+	.00	1.60
	SSI	L^+	.00	1.18
	GMG-3	L^+	.00	1.49
	GMG-3	P^2	.02	.46
SSI	SSC-A	L^+	.0001	1.97
	SSC-C	L^+	.0001	1.07
	SSC-C	XP^2	.036	.38
	BRS-SR	L^+	.001	.68
	SSD	XP	.016	.39
SSD	BRS-SR	L+	.001	.64
	GMG-3	L+	.01	.45

KENTUCKY
(Within)

Criterion	Predictor	Effect	P	% V
SSI	BRS-OR	XP	.04	.43
	BRS-SR	L^+	.00	1.10
	PH	L^+	.00	.82
	BRS-OR	L^+	.00	1.62
	BRS-SR	L^+	.00	1.11
PH	ACH	L^+	.01	.50
SSC-C	SSI	P^2	.01	.68
	SSI	L^+	.00	4.35
	BRS-SR	L^+	.00	3.96
	PH	L^+	.00	2.56
	BRS-OR	L^+	.02	.63

Criterion	Predictor	Effect	P	% V
SSC-A	SSC-C	XP	.00	.99
	SSC-C	L^+	.00	1.22
	PH	L^+	.00	3.35
	BRS-OR	L^+	.00	1.11
	BRS-SR	XP	.05	.43
	BRS-SR	P^2	.01	.74
	BRS-SR	L^+	.00	2.81
	SSI	XP	.01	.62
	SSI	P^2	.00	1.02
	SSI	L^+	.00	4.29
	Ach	XP	.02	.61
CT Ach.	PH	L^+	.0001	1.36
	BRS-OR	L^+	.0001	6.17
	BRS-SR	L^+	.0004	1.10
	SSC-C	L+Q	.007	.65

AUSTIN 1
(Between)

Criterion	Predictor	Effect	P	% V
CTBS	SSC-C	P^2	.02	3.55
	SSC-A	XP	.00	5.66
	BRS-OR	XP^2	.05	2.73
SSI	BRS-OR	XP	.00	8.93
	BRS-SR	XP	.03	5.05
	CTBS	L^+	.00	8.18
PH	BRS-OR	XP^2	.02	5.06
	SSC-C	L^+	.04	3.82
	BRS-SR	L^+	.01	5.73
SSC-C	CTBS	L^+	.00	13.71
SSC-A	SSI	XP	.04	5.73

AUSTIN 2
(Between)

Criterion	Predictor	Effect	P	% V
SSI	SSC-C	XP	.01	10.44
SSD	BRS-SR	XP	.04	6.17
	GMG-3	XP^2	.00	15.93
SSC-C	BRS-OR	L^+	.03	6.89
SSC-A	BRS-SR	P^2	.02	7.84
	SSD	L^+	.01	11.68
	BRS-OR	L^+	.00	17.55
	BRS-SR	L^+	.03	7.96
	SSI	L^+	.04	7.22
	SSI	X^2P^2	.03	7.58
BRS-OR	GMG-3	L^+	.05	4.25
BRS-SR	GMG-3	L^+	.04	1.12
HOW-CL	GMG-3	L+	.00	29.86
	BRS-OR	L+	.00	22.40
	BRS-SR	L+	.04	9.80
	SSI	L+	.04	9.72
	SSD	L+	.00	26.31

KENTUCKY
(Between)

Criterion	Predictor	Effect	P	% V
PH	BRS-OR	XP^2	.04	13.72
	SSC-C	L	.03	14.16
SSI	BRS-OR	L^+	.01	15.35
	BRS-SR	L^+	.05	8.83
SSC-C	SSC-A	XP	.03	15.23
	SSC-A	L^+	.04	16.29
	BRS-SR	L^+	.00	40.60
	SSI	L^+	.01	23.06
	BRS-OR	L^+	.00	30.19
SSC-A	PH	P^2	.004	17.49
	BRS-O	XP^2	.02	8.05
	BRS-O	L^+	.01	14.12
	BRS-S	L^+	.006	16.29
GMG	Between-class analysis not feasible; different level tests used			

PROPOSITION THREE
EFFECTS OF STUDENT ENTRY CHARACTERISTICS ON ATTENDANCE

TABLE P3

AUSTIN 1
(Within Class)
(2/7)*

	P		% V
Achievement CTBS	.00	L+	2.08
Self-Esteem PH	.00	L+	1.18

AUSTIN 2
(Within Class)
(3/7)*

	P		% V
Achievement GMG	.00	L+	1.59
Self-Esteem PH	.02	L+	.82
Coping/Skill (Peers) BRS-OR	.00	L+	1.41

KENTUCKY

Attendance figures not obtained.

* A non-chance proportion of significant findings

831

PROPOSITION THREE-A

EFFECTS OF ATTENDANCE ON STUDENT OUTCOME

TABLE P3-A

AUSTIN I (WITHIN-CLASS) (2/5)*

Outcome,	Pre			Post			Residual Gain		
Controlling Class	p	d	V%	p	d	V%	p	d	V%
Achievement	.00	+	.02	.10	+	.02	.01	+	.05
Self-Esteem	.00	+	.01	.00	+	.01	NS		
Attitude - School	NS			NS			NS		
Attitude - General	NS			NS			NS		
Coping - General	NS			NS			NS		

AUSTIN II (WITHIN-CLASS) (3/5)*

Achievement	.00	+	.02	.00	+	.02	NS		
Self-Esteem	.02	+	.01	.00	+	.01	NS		
Attitude - School	NS			NS			NS		
Attitude - General	NA			NA			NA		
Coping - General	NA			NA			NA		
Coping - Academic (Peer)	.00	+	.01	.00	+	.04	.00	+	.02
Coping - Academic (Self)	NS			NS			NS		

* A non-chance proportion of significant findings

PROPOSITION FOUR
EFFECTS OF STUDENT ENTRY CHARACTERISTICS ON TIME-ON-TASK BEHAVIOR

TABLE P4

	AUSTIN 1		AUSTIN 2		KENTUCKY	
	(5/7)*		(4/7)*		(2/7)*	
			Within-Class			
Pretest	P	% V	P	% V	P	% V
Self-Esteem (PH/SSD)	.00	+ 2.88		NS		NS
Attitude School (SSI)	.00	+ 3.45	.04	+ 1.78		NS
Achievement (CTBS/GMG)	.00	+ 6.72		NS		NS
General Attitude (SSC-A)	.00	+ 2.58		NS	.04	+ 2.03
General Coping (SSC-C)	.02	+ 1.72	.03	+ 1.96	.05	+ 2.91
Academic Coping - Self (BRS-SR)		NS	.05	+ 1.60		NS
Academic Coping - Peers (BRS-OR)		NS	.00	+ 4.13		NS

* A non-chance proportion of significant findings

PROPOSITION FIVE
RELATIONSHIP OF STUDENT ENTRY CHARACTERISTICS TO THEIR CLASSROOM BEHAVIOR

TABLE P5A
ENTRY LEVELS CORRELATED WITH COR-PUPIL (CLASS MEANS)
(Between-Class)

	AUSTIN 1 (N=53) (1/5)	AUSTIN 2 (N=43) (5/5)	KENTUCKY (N=27) (0/4)
Self-Esteem (PH/SSD)	NS	.49	NS
Attitude - School (SSE)	NS	.46	NS
Attitude - General (SSC-A)	NS	.40	NS
General Coping - Self (SSC-C)	NS	.30	NS
Achievement (CT/GMG)	.43	.56	Not done
	r.35=$p < .01$; .27=$p < .05$	r.39=$p < .01$; .30=$p < .05$	

TABLE P5B
ENTRY LEVELS CORRELATED WITH INDIVIDUAL COPING SCORES
(Teacher-Rated) (Within Class)

	AUSTIN 1 (N=348)		AUSTIN 2 (N=251)		KENTUCKY (N=151)	
	Academic (4/5)*	Social-Emotional (4/5)*	Academic (4/7)*	Social-Emotional (2/7)*	Academic (3/5)*	Social-Emotional (3/5)*
Self-Esteem (PH/SSD)	.32	.27	.23	NS	.41	.29
Attitude - School (SSI)	.39	.24	.19	NS	.24	.32
Attitude - General (SSC-A)	NS	NS	NS	NS	NS	NS
General Coping (SSC-C)	.16	.15	NS	NS	NS	NS
Achievement (CT/GMG)	.51	.37	.31	.21	.51	.34
Coping - Peer (BRS-O)	NA		.40	.46	NA	
Coping - Self (BRS-S)	NA		NS	NS	NA	
	r.13=$p < .01$		r.19=$p < .01$		r.24=$p < .01$	

* A non-chance proportion of significant findings

PROPOSITION SIX
TEACHER AGE AND EXPERIENCE CORRELATIONS WITH PERSONAL TRAITS (ASD)

TABLE P6

	AUSTIN 1		AUSTIN 2		KENTUCKY	
Teacher	ASD (3/14)*		ASD (0/14)		ASD (1/14)	
Age	Anxiety	-.28			Attractiveness	-.36
	Efficiency	(.24)				
Experience	Efficiency	-.37	Anxiety	(-.28)		
	Introversion	-.27	Efficiency	(.25)		

Correlations in parentheses are near but not at $p < .05$

PROPOSITION SEVEN
TEACHER AGE AND EXPERIENCE CORRELATIONS WITH TEACHING BEHAVIOR (COR)

TABLE P7

	AUSTIN 1 (2/6)*			AUSTIN 2 (0/6)			KENTUCKY (3/6)*		
COR	KU	SO	SI	KU	SO	SI	KU	SO	SI
Age	-.37	NS	NS	(-.23)	NS	NS	-.40	-.56	-.34
Experience	-.26	NS	NS	NS	NS	NS	NS	NS	NS

Correlations shown $p < .01$

PROPOSITION EIGHT
TEACHER AGE AND EXPERIENCE CORRELATIONS WITH CLASS BEHAVIOR (COR-P)

TABLE P8

	AUSTIN 1 (0/2)	AUSTIN 2 (0/2)	KENTUCKY (1/2)
Age	NS	NS	-.48
Experience	NS	NS	NS

* A non-chance proportion of significant findings

PROPOSITION NINE
TEACHER AGE AND EXPERIENCE CORRELATIONS WITH STUDENT ATTENDANCE

TABLE P9

	AUSTIN 1 (0/2)	AUSTIN 2 (0/2)	KENTUCKY (0/2)
Age	NS	NS	NS
Experience	NS	NS	NS

PROPOSITION TEN
TEACHER AGE AND EXPERIENCE EFFECTS ON STUDENT TIME ON TASK

TABLE P10

(No significant effects in any sample)

PROPOSITION ELEVEN
EFFECTS OF TEACHER EXPERIENCE ON STUDENT OUTCOMES (BETWEEN CLASS)

TABLE P11

	(N=53) AUSTIN 1 (0/6)	(N=43) AUSTIN 2 (1/6)		(N=27) KENTUCKY (1/6)	
		P	% V	P	% V
Self-Esteem (PH/SSD)	NS	NS		NS	
Attitude-School (SSI)	NS	NS		.00 L+	16.6
Attitude-General (SSC-A)	NS	NS		NS	
Coping - General (SSC-C)	NS	NS		NS	
Achievement (CT/GMG)	NS	NS		NS	
SET	NS	.00 L-	15.3	NS	

PROPOSITION TWELVE
EFFECTS OF TEACHER TRAITS ON TEACHING BEHAVIOR (L+Q)
(Between-Class)

TABLE P12

	AUSTIN 1 (10/14) *								
	KU			SO			SI		
ASD	P		% V	P		%V	P		% V
Attitude	.05		.23				.02	Q	10.5
Behavior (-)	.01	Q	11.2	.00	Q	14.6			
Efficiency									
Introversion	.04	L-	.25						
Anxiety									
Individualism							.03	Q	8.9
Attractiveness	.05	L-	.23	.04	L-	.24	.00	L-	.44
							.00	Q	19.0

AUSTIN 2: No significant findings (0/14)

KENTUCKY: No significant findings (0/14)

PROPOSITION THIRTEEN
EFFECTS OF TEACHER TRAITS ON CLASS BEHAVIOR (L+Q)
(Between-Class)

TABLE P13

AUSTIN 1:	Attractiveness	p <.05	L-	22.5% V	(1/14)
AUSTIN 2:	No significant findings				(0/14)
KENTUCKY:	No significant findings				(0/14)

PROPOSITION FOURTEEN
EFFECTS OF TEACHER TRAITS ON STUDENT ATTENDANCE (L+Q)
(Between-Class)

TABLE P14

AUSTIN 1:	Individualism	p < .01	Q	11.52% Var.	(1/14)
AUSTIN 2:	Efficiency	p < .05	L-	13.1% Var.	(2/14)
	Efficiency	p < .01	Q	19.0% Var.	
KENTUCKY:	Attendance data not available				

---

* A non-chance proportion of significant findings

PROPOSITION FIFTEEN
EFFECTS OF TEACHER TRAITS ON STUDENT TIME-ON-TASK
(Between-Class)

TABLE P15

AUSTIN 1:	(Negative) Behavior	$p < .05$	Q	8.7% Var.	(1/14)
AUSTIN 2:	Efficiency	$p < .05$	L+	14.1% Var.	(2/14)
	Introversion	$p < .05$	Q	14.7% Var.	
KENTUCKY:	Attitude	$p < .01$	L-	32.6% Var.	(2/14, opposite to prediction)
	(Negative) Behavior	$p < .05$	L+	17.5% Var.	

PROPOSITION SIXTEEN
EFFECTS OF TEACHER TRAITS ON STUDENT OUTCOMES
(Between-Class)

TABLE P16

AUSTIN 1 (9/70)*

	Achievement			Self-Esteem			Attitude: School			Attitude: General			Coping: General		
ASD	P	___	% V	P	___	% V.	P	___	% V	P	___	% V	P	___	% V
Attitude				.00	L+	9.7	.01	L+	9.2	.05	L+	4.0			
Behavior (-)															
Efficiency				.04	L+	3.1				.01	L+Q	10.2			
Introversion	.04	L+	2.3	.05	Q	2.6									
Anxiety															
Individual															
Attractive	.03	L-Q	3.7										.02	Q	5.1

This analysis was not performed for Austin 2 or Kentucky

* A non-chance proportion of significant findings

PROPOSITION SEVENTEEN
THE STABILITY OF INDIVIDUAL TEACHING BEHAVIOR

TABLE 17A
CORRELATIONS OF BEHAVIOR ACROSS TIME (AUSTIN YEARS 1 and 2), SUBJECTS (SOCIAL STUDIES, READING) AND RATERS

COR-KU	.77	a
COR-SO	.78	
COR-SI	.53	
COR-Pupil	.65	
SET	.68	b

Ratings of the same 33 teachers in successive years by:
(a) two different teams of observers
(b) two different classes of students

TABLE P17B
CORRELATIONS OF OBSERVER RATINGS WITH STUDENT RATINGS

	SET-POST		
	AUSTIN 1	AUSTIN 2	KENTUCKY
COR-KU	.68	.54	.73
COR-SO	.54	.45	.68
COR-SI	.47	.38	.66
COR-Pupil	.51	.40	N.A.

TABLE P17C
CONSISTENCY OF BEHAVIOR RATINGS ACROSS RATER (AUSTIN 4, KY 2) AND OCCASIONS (2)

	AUSTIN 1	AUSTIN 2	KENTUCKY
COR-KU	.97	.96	.93
COR-SO	.98	.99	.95
COR-SI	.98	.97	.91
COR-Pupil	.88	.96	.89

Each coefficient shows the estimated reliability of a mean score for each teacher, computed across four raters on two occasions. Their size shows that all observers saw teachers very similarily, and found teachers highly consistent across occasions.

PROPOSITION EIGHTEEN
EFFECTS OF TEACHER BEHAVIOR ON CLASS BEHAVIOR (COR-PUPIL)
(Between-Class)

TABLE P18

	COR-KU			COR-SO			COR-SI		
	P	Dir	% Var	P	Dir	% Var	P	Dir	% Var
AUSTIN 1 (3/6)*	.01	L+	51.2	.001	L+	71.4	.001	L+	56.7
AUSTIN 2 (4/6)*	.001	L+	31.5	.001	L+	42.8	.001	L+	58.7
	.05	Q	6.6						
KENTUCKY (4/6)*		NS		.001	L+	72.5	.001	L+	72.1
							.05	Q	5.5

PROPOSITION NINETEEN
EFFECTS OF TEACHER BEHAVIOR ON STUDENT ATTENDANCE

TABLE P19

AUSTIN 1	COR-SO	p <.05	L+	10.85% Variance	(1/3)
AUSTIN 2	No significant findings				(0/3)
KENTUCKY	No data				

* A non-chance proportion of significant findings

PROPOSITION TWENTY
EFFECTS OF TEACHER BEHAVIOR ON STUDENT TIME-ON-TASK
(Between-Class)

TABLE P20

	COR-KU			COR-SO			COR-SI		
	P		% V	P		% V	P		% V
AUSTIN 1 (1/6)		NS		.01	L+	15.1		NS	
AUSTIN 2 (3/6)*	.01	L+	13.7	.001	L+	25.0	.01	L+	15.2
KENTUCKY (0/6)		NS			NS			NS	

PROPOSITION TWENTY-ONE
EFFECTS OF TEACHER BEHAVIOR ON STUDENT EVALUATIONS OF THE TEACHER
(BETWEEN-CLASS)

TABLE P21

	Teacher Effects on SET and HOW-CL (Post Measures)								
	COR-KU (3/6)*			SO (3/6)*			SI (3/6)*		
SET-Post	P	Dir.	% V	P	Dir.	% V	P	Dir.	% V
AUSTIN 1	.001	L+	30.5	.01	L+Q	10.9	.01	L+	13.0
AUSTIN 2	.01	L+	14.4	.02	L+	7.8	.01	L+	12.3
KENTUCKY	.001	L+	53.3	.001	L+	46.2	.001	L+	43.6
HOW-CL									
AUSTIN 2 (3/6)*	.02	L+	13.0	.01	L+	17.0	.002	L+	21.0

(Combined effect of all three: p< .01 L+ 27% V)

* A non-chance proportion of significant findings

PROPOSITION TWENTY-TWO
CORRELATIONS OF (TEACHER-RATED) COPING SKILLS WITH STUDENT TIME-ON-TASK (WITHIN-CLASS)

TABLE P22

	Academic Coping	Social-Emotional Coping
AUSTIN 1 N=258	.26	.31
AUSTIN 2 N=253	.27	.25
KENTUCKY N=141	.17	NS

All correlations shown have p <.01

PROPOSITION TWENTY-THREE
EFFECTS OF STUDENT TIME-ON-TASK ON STUDENT OUTCOMES
(Between-Class Analysis)

TABLE P23

SAMPLE	OUTCOME (REGRESSED GAIN)	P	DIR.	% V
AUSTIN 1 (0/25)	No significant effects			
AUSTIN 2 (3/35)	Achievement (GMG)	.003	X^QP^Q	2.5
	Academic Coping, Peer-Rated (BRS-O)	.05	L+	4.6
		.05	X^QP	4.3
KENTUCKY (6/25)*	Self-Esteem (PH)	.03	L+	15.2
	Self-Esteem	.03	X^QP^Q	11.4
	Attitude to School (SSI)	.01	XP	15.6
	Attitude - General (SSC-A)	.03	P^Q	10.6
	Attitude - General	.02	XP	12.6
	Coping - General, Self-Rated (SSC-C)	.05	XP^Q	15.8
	(Within-Class Analysis)			
AUSTIN 1 (6/25)*	Achievement (CT)	.04	XP	0.5
	Self-Esteem (PH)	.001	L+	1.9
	Attitude to School (SSI)	.02	XP	0.9
	Attitude - General (SSC-A)	.001	L+	1.9
	Coping - General, Self-Rated (SSC-C)	.001	L+	3.3
	Coping - General, Self-Rated (SSC-C)	.001	P^Q	2.6
AUSTIN 2 (5/35)*	Attitude to School (SSI)	.02	L+	1.2
	Attitude - General (SSC-A)	.001	L+	3.2
	Academic Coping, Peer-Rated (BRS-O)	.01	L+	1.7
	Academic Coping, Peer-Rated (BRS-O)	.01	XP	1.5
	Academic Coping, Self-Rated (BRS-S)	.04	L+	1.3
KENTUCKY (1/25)	Achievement (CT)	.001	XP^Q	2.5

* A non-chance proportion of significant findings.

See Chapter VII for detailed description of findings.

PROPOSITION TWENTY-FOUR
EFFECTS OF INDIVIDUAL STUDENT COPING SKILLS (TEACHER-RATED) ON OUTCOMES
(Between-Class Analysis)

TABLE P24A

SAMPLE	OUTCOME (REGRESSED GAIN)	COPING SKILL	P	DIR.	% V
AUSTIN 1 (3/50)	Achievement (CT)	Academic	.04	L+	3.0
	Self-Esteem (PH)	Academic	.002	L+	7.2
	Self-Esteem (PH)	Social-Emotional	.02	L+	5.1
AUSTIN 2 (12/70)*	Achievement (CT)	Social-Emotional	.03	X^QP	1.5
	Attitude to School (SSI)	Academic	.03	X^QP^Q	8.8
	Attitude to School (SSI)	Social-Emotional	.01	L+	13.4
	Attitude - General (SSC-A)	Academic	.00	X^QP^Q	12.0
	Attitude - General (SSC-A)	Social-Emotional	.00	X^QP^Q	10.9
	Academic Coping, Peer-Rated (BRS-O)	Academic	.05	X^QP	4.3
	Academic Coping, Peer-Rated	Social-Emotional	.03	L+	5.2
	Academic Coping, Self-Rated (BRS-S)	Academic	.02	L+	10.9
	Academic Coping, Self-Rated (BRS-S)	Academic	.01	XP	11.6
	General Coping, Self-Rated (SSC-C)	Academic	.05	L+	6.5
		Academic	.02	X^QP	8.2
		Social-Emotional	.02	L+	9.3
KENTUCKY (6/50)*	Self-Esteem (PH)	Academic	.04	P^Q	14.2
	Attitude to School (SSI)	Academic	.01	XP	17.8
		Academic	.01	X^QP	12.2
		Social-Emotional	.01	XP	19.2
		Social-Emotional	.03	P^Q	11.8
	Attitude - General (SSC-A)	Academic	.01	XP	16.6

*A non-chance proportion of significant results

N.B. When between-class analysis show significant effects, this necessarily implies that different teachers used a similar "yardstick" in assessing student coping skill. Students rated high or low by one teacher would probably be rated similarly by the other teachers. The effects shown here are evidence of consequent-validity for the teacher ratings of the students.

PROPOSITION TWENTY-FOUR
EFFECTS OF INDIVIDUAL STUDENT COPING SKILLS (TEACHER-RATED) ON OUTCOMES
(Within-Class Analysis)

TABLE P24B

SAMPLE	OUTCOME (REGRESSED GAIN)	COPING SKILL	P	DIR.	% V
AUSTIN 1 (14/50)*					
	Achievement (CT)	Academic	.001	L+	6.5
		Academic	.01	P^Q	0.6
		Acacemic	.04	XP	0.4
		Social-Emotional	.001	L+	1.8
	Self-Esteem (PH)	Academic	.01	L+	2.9
		Academic	.03	XP^Q	0.6
		Social-Emotional	.001	L+	2.0
	Attitude to School (SSI)	Academic	.001	L+	4.8
		Social-Emotional	.001	L+	4.0
		Social-Emotional	.01	XP	1.6
	Attitude - General (SSC-A)	Academic	.001	L+	5.9
		Social-Emotional	.001	L+	3.9
	Coping - General, Self (SSC-C)	Academic	.001	L+	6.5
		Social-Emotional	.001	L+	2.2
AUSTIN 2 (12/70)*	Achievement (GMG)	Social-Emotional	.001	P^Q	0.9
	Self-Esteem (SSC)	Social-Emotional	.02	L+	1.3
	Attitude to School (SSI)	Academic	.001	L+	2.9
	Attitude to School (SSI)	Social-Emotional	.001	L+	2.9
	Attitude to School (SSI)	Social Emotional	.03	XP^Q	1.0
	Attitude - General (SSC-A)	Academic	.01	L+	1.7
	Attitude - General (SSC-A)	Social-Emotional	.01	L+	2.0
	Academic Coping, Peers (BRS-O)	Academic	.001	L+	15.4
	Academic Coping, Peers (BRS-O)	Social-Emotional	.001	L+	16.4
	Academic Coping, Self (BRS-S)	Academic	.001	L+	6.4
	Academic Coping, Self (BRS-S)	Social-Emotional	.001	L+	8.9
	Coping - General, Self (SSC-C)	Social-Emotional	.001	L+	2.9

---

*A non-chance proportion of significant results

SAMPLE	OUTCOME (REGRESSED GAIN)	COPING SKILL	P	DIR.	% V
KENTUCKY (6/50)*	Achievement (CT)	Academic	.001	L+	5.8
	Achievement	Social-Emotional	.001	L+	3.4
	Self-Esteem	Academic	.02	L+	1.5
	Attitude - General (SSC-A)	Academic	.02	XP^Q	2.5
	Attitude - General (SSC-A)	Social-Emotional	.04	P^Q	2.1
	Coping - General (SSC-C)	Academic	.03	L+	2.6

PROPOSITION TWENTY-FIVE
EFFECTS OF CLASS BEHAVIOR (COR-PUPIL) ON STUDENT OUTCOMES
(Between-Class)

TABLE P25

SAMPLE	OUTCOME (REGRESSED GAIN)	P	DIR.	% V
AUSTIN 1 (7/25)*	Self-Esteem (PH)	.03	XP^Q	3.8
	Attitude to School (SSI)	.03	L+	5.2
		.01	X^QP^Q	7.3
	Attitude - General (SSC-A)	.01	L+	8.8
		.02	XP	6.6
	Coping - General (SSC-C)	.02	L+	6.2
		.02	XP^Q	5.8
AUSTIN 2	No significant effects			
KENTUCKY	Analysis not performed			

*A non-chance proportion of significant findings.

PROPOSITION TWENTY-SIX
EFFECTS OF TEACHER BEHAVIOR (COR-KU, SO, SI) ON STUDENT OUTCOMES

TABLE P26

AUSTIN 1 (Between-Class) N=53 (12/30)*

OUTCOME	KU			SO			SI		
(Regressed Gain)	P	Dir	% V	P	Dir	% V	P	Dir	% V
Achievement (CT)	.02	L+	3.0				.03	L+	2.4
Self-Esteem (PH)							.04	Q	3.1
Attitude - School (SSI)	.001	L+	25.9	.01	L+Q	17.4	.001	L+Q	19.1
Attitude - General (SSC-A)	.001	L+	14.0	.01	L+	7.3	.01	L+Q	11.3
Coping - General (SSC-C)	.01	L+Q	9.2	.01	L+Q	10.3	.05	L+	3.1

AUSTIN 2 (Between-Class) N=43 (4/30)*

OUTCOME	KU			SO			SI		
(Regressed Gain)	P	Dir	% V	P	Dir	% V	P	Dir	% V
Achievement	.01	Q	2.1	.01	L+Q	2.7			
Self-Esteem									
Attitude - School									
Attitude - General									
Coping - General	.01	Q	8.0	.03	Q	5.5			

KENTUCKY (Between-Class) N=27 (5/24)*

OUTCOME	KU			SO			SI		
(Regressed Gain)	P	Dir	% V	P	Dir	% V	P	Dir	% V
Achievement	Not analyzed				NA			NA	
Self-Esteem				.02	L+	13.6			
Attitude - School				.03	L+	7.8			
Attitude - General	.03	L+	8.5	.01	L+	11.4	.04	L+	7.3
Coping - General									

* A non-chance proportion of significant findings

PROPOSITION TWENTY-SEVEN
EFFECTS OF STUDENT-PERCEIVED TEACHING BEHAVIOR (SET) ON STUDENT OUTCOMES

TABLE P27

OUTCOME (Regressed Gain)	PRE-POST	SET POST (Between-Class) P	Dir.	% V	HOW-CL (Within-Class) P	Dir	% V
AUSTIN 1 (3/10)*							
Achievement (CT)	81					NOT ADMINISTERED	
Self-Esteem (PH)	72						
Attitude - School (SSI)	68	.000	L+	32.8			
Attitude - General (SSC-A)	52	.006	L+	10.5			
Coping - General (SSC-C)	65	.000	L+	12.9			
AUSTIN 2 (4/14)*							
Achievement	93				.003		7.8
Self-Esteem (PH)	60	.003	Q	11.4	.000	L+	6.6
Attitude - School (SSI)	52	.001	L+	15.0	.000	L+	15.7
Attitude - General (SSC-A)	53				.000	L+	8.6
Coping - General (SSC-C)	60	.01	L Slope	7.6	.000	L+	5.2
Coping - Academic - Peer (BRS-O)	74	.02	L Slope	4.4	.000	L+	3.7
Coping - Academic - Self (BRS-S)	45				.000	L+	6.4
KENTUCKY (4/8)*							
Achievement		NOT ANALYZED				NOT ADMINISTERED	
Self-Esteem (PH)	44	.002	L+	23.8			
Attitude - School (SSI)	65	.001	L+	19.5			
Attitude - General (SSC-A)	64	.01	L+	13.5			
Coping - General (SSC-C)	76	.03	Q	12.2			

*A non-chance proportion of significant effects.

PROPOSITION TWENTY-EIGHT
INTERACTING EFFECTS OF TEACHER BEHAVIOR AND STUDENT CHARACTERISTICS ON STUDENT OUTCOMES

TABLE P28

	AUSTIN 1	AUSTIN 2	KENTUCKY
Within-Class	10/240*	15/270*	27/240*
Between-Class	16/180*	15/270*	9/180

*It requires 8 effects at p .01 or 19 at p .05 to be a non-chance frequency out of 240 tests (4 student predictors x 3 teacher measures x 5 criteria x 4 tests (PT, PT^2, XT, XPT). Of 270 tests, p .01 requires 8 significant tests, p .05 requires 21 tests, to be a non-chance proportion.

SIGNIFICANT RESULTS

AUSTIN 1 (WITHIN) (10/240)

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Achievement (CTBS)	X *	BRS-OR	*	COR-SO	.04	.34
	X		*	SO	.01	.34
Self-Esteem (PH)		SSI	*	SO	.01	.24
	X		*	SO	.001	.85
	X	SSC-C	*	SI	.01	.66
Attitude - School (SSI)		PH	*	KU	.001	.99
		PH	*	SI	.01	.85
		PH	*	SO	.01	.81
Attitude - General (SSC-A)		PH	*	KU^{L+Q}	.05	.64
Coping - General (SSC-C)		CTBS	*	COR-SO	.05	.64

AUSTIN 1 (BETWEEN) (16/180)

Achievement (CTBS)		SSC-C	*	$COR-SO^{L+Q}$	.02	5.20
Self-Esteem (PH)		SSI	*	SO	.03	4.30
		SSC-A	*	SO	.01	5.61
		SSI	*	SI	.03	4.61
		SSC-A	*	SI	.01	6.35
		SSC-A	*	KU	.02	6.97

TABLE P28
Page 2

AUSTIN 1 (BETWEEN) (16/180)(continued)

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Attitude - School (SSI)		PH	*	SI	.04	4.47
		SSC-C	*	SO^Q	.03	4.45
Attitude - General (SSC-A)		CTBS	*	KU	.01	7.97
		PH	*	KU^{L+Q}	.01	9.84
	X		*	KU	.04	5.12
		CTBS	*	SO	.01	7.93
	X		*	SO	.03	6.33
		CTBS	*	SI	.02	7.24
	X		*	SI	.02	7.39
Coping - General (SSC-C)		CTBS	*	SO	.03	4.01

AUSTIN 2 (WITHIN) (16/270)*

Outcome	Pre-test	Student	X	Teacher	P Value	%V
Self-Esteem (SSD)	X	* SES	*	COR-KU	.01	.97
	X	* SET	*	-KU	.01	.50
		$BRS\text{-}SR^Q$	*	$-KU^Q$	.01	.42
	X	* SET	*	-SO	.01	.79
		GMG	*	-SO	.00	1.17
	X	* SSC-C	*	-SI	.02	.72
Attitude-School (SSI)		SSC-C	*	COR-KU	.03	.50
	X	* SET	*	-KU	.02	.82
	X	* SSC-A	*	-KU	.00	1.12
		$BRS\text{-}SR^Q$	*	$-KU^Q$	.03	.34
		HOWCL	*	-SO	.04	.36
	X		*	-SO	.00	.90
		SSC-A	*	-SO	.02	.39
		SET	*	-SI	.02	.54
Coping - Academic (BRS-OR)		SES	*	$COR\text{-}SO^Q$	.02	.29
Coping - General (SSC-C)		$SSC\text{-}A^Q$	*	$COR\text{-}SO^Q$	.04	.73

TABLE P28
Page 3

AUSTIN 2 (BETWEEN) (15/270)

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Achievement (GMG-3)		GMG	*	COR-KU	.04	1.23
		HOW	*	KU	.00	1.83
		BRS-SR	*	KU^{Q}	.04	1.03
		HOW	*	SO	.01	1.75
Self-Esteem (SSD)		SSC-C	*	KU^{Q}	.00	12.82
		SSD	*	SO^{Q}	.05	5.51
		GMG	*	SI^{Q}	.04	6.62
Attitude - School (SSI)	X		*	KU^{Q}	.04	8.18
		SSC-A	*	KU^{Q}	.02	14.46
		SSC-C	*	KU	.02	9.07
		HOW	*	SO^{Q}	.01	6.02
		BRS-OR	*	SO^{Q}	.04	6.99
		SSD	*	SO^{Q}	.03	8.08
Coping -Academic-Peer (BRS-OR)		GMG	*	SO^{Q}	.03	5.16
Coping - General (SSC-C)		HOW-CL	*	SI	.02	7.56

KENTUCKY (WITHIN) (27/240)*

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Achievement (CT)		BRSO	X	KU	.05	.5
		PH	*	KU	.01	.5
		PH	*	KU^{Q}	.02	.4
	X		*	KU	.03	.3
		SSC	*	KU	.03	.3
	X			KU	.04	.4
		PH	*	SO	.03	.4
	X		*	SO	.00	1.0
	X		*	SI^{Q+L}	.00	1.0
	X *	BRS-S	*	SI	.04	.7
	X *	SSC-A	*	SI^{Q+L}	.00	1.1

855

TABLE P28
Page 4

KENTUCKY (WITHIN) (27/240)*(continued)

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Self-Esteem (PH)	X *	SSI	*	KU	.00	.57
Attitude - School (SSI)	X *	SSC-C	*	KU	.02	1.20
	X *	SSC-C	*	KU^Q	.01	1.20
		Ach	*	SO	.04	.44
		Ach	*	KU	.05	.42
		Ach	*	SI	.01	.66
Attitude - General (SSC-A)		PH	*	SI	.03	.52
		PH	*	SI	.04	.45
		PH	*	SI^Q	.05	.45
	X		*	SO^{L+Q}	.01	.81
Coping - General (SSC-C)	X		*	SO	.03	.58
		Ach	*	SO^{L+Q}	.05	.78
		Ach	*	SI	.05	1.19
		Ach	*	SI^Q	.04	.50
	X		*	SO	.03	.55
	X *	BRS-SR	*	KU^Q	.04	.98

KENTUCKY (BETWEEN) (7/180)

Outcome	Pre-Test	Student	X	Teacher	P Value	% V
Self-Esteem (PH)		BRS-SR	*	KU^Q	.04	12.35
	X		*	SO^Q	.04	12.35
Attitude - School (SSI)		BRS-OR	*	SO	.04	6.61
	X		*	SI^Q	.05	7.13
		SSC-A	*	SI	.02	12.47
		SSC-C	*	SI	.02	10.68
Attitude - General (SSC-A)	X		*	SI	.03	7.95

PROPOSITION TWENTY-NINE
SOCIO-ECONOMIC STATUS EFFECTS ON STUDENT ENTRY LEVELS

TABLE P29

AUSTIN 1 (Within) (7/21)*

Student Entry	Effect	P Value	% V	Direction
Achievement (CTBS)	SES L+	.001	8.28	H > L
	SES M**	.001	1.21	Pres > Miss
Self-Esteem (PH)	SES L+	.001	1.89	H > L
	SES M	.01	.56	Pres > Miss
Attitude - General (SSC-A)	SES M	.05	.28	Pres > Miss
Coping - General (SSC-C)	SES L+	.01		
Coping - Academic (Peer) (BRS-OR)	SES L+	.001	2.6	H > L
	SES M	.001	.86	Pres > Miss
Coping - Academic (Self) (BRS-SR)	SES L+	.001	2.67	H > L
	SES M	.05	.35	Pres > Miss

AUSTIN 1 (General) (12/42)*

Achievement (CTBS)	SES (L+Q)	.001	13.4	
	SES L +	.001	3.8	H > L
	SES (Missing)	.001	1.0	Pres > Miss
	SES*Eth (controlled)	.001	4.7	
Self-Esteem (PH)	SES*Eth (controlled)	.001	2.3	(H > L)
	SES L +		2.7	(H > L)
	SES (Missing)	.01	.6	(P > M)
Attitude - General (SSC-A)	SES (missing) *Eth (controlled)	.01	.4	(M > P)
Coping - Academic (Peer) (BRS-OR)	SES*Eth (controlled)	.001	1.4	H > L
	SES (Miss)* Eth (controlled)	.01	.6	P > L
	SES L *Eth (controlled)	.01	.9	H > L
	SES L	.01	4.5	H > L

TABLE P29 (Con't)

Student Entry	Effect	P Value	% V	Direction
AUSTIN 2 (Within) (7/21)*				
Achievement (GMG-3)	L +	.00	8.68	H > L
Self-Esteem (SSD)	L+	.01	.60	H > L
	M+	.00	3.05	P > M
Attitude - School (SSI)	SES^Q	.04	.32	
Coping - Academic (Peer) (BRS-OR)	L +	.00	1.65	H > L
	(M)	.00	.76	P > M
Coping - Academic (Self) (BRS-SR)	L +	.04	.35	H > L
AUSTIN 2 (Between) (2/21)				
Self-Esteem (SSD)	L+	.05	5.93	H > L
Coping - Academic (Self) (BRS-SR)	L+	.01	12.09	H > L
KENTUCKY (Within) (3/21)*				
Self-Esteem (PH)	L+	.00	2.22	H > L
Coping - Academic (Peer) (BRS-OR)	L+	.01	.92	H > L
Coping - Academic (Self) (BRS-SR)	L+	.04	.58	H > L
KENTUCKY (Between) (1/18)				
Coping - General (SSC-C)	L +	.03	17.41	H > L

---

*A non-chance proportion of significant findings.

**M=Missing or vague data. Students with missing data looked the same as those with low SES, as might be expected.

Note: Within and General Analysis yielded similar significant results.

PROPOSITION THIRTY
SOCIO-ECONOMIC STATUS EFFECTS ON INDIVIDUAL COPING BEHAVIOR

TABLE P30

AUSTIN 1 (Within) (1/2)

Academic Coping (SD1)	p < .00	SES L+	3.3% V	H> L
Social-Emotional Coping (SD2)		NS		

AUSTIN 2 (Within) (1/2)

Academic Coping (SD1)	p < .01	SES L+	2.4%	H > L

KENTUCKY (Within) (0/2)

No significant effects

PROPOSITION THIRTY-ONE
SOCIO-ECONOMIC EFFECTS ON STUDENT TIME ON TASK (WITHIN-CLASS)

TABLE P31

AUSTIN 1 (1/1)	SES L+	p<.00	2.0% Var.	H > L
AUSTIN 2 (0/1)		NS		
KENTUCKY (0/1)		NS		

PROPOSITION THIRTY-TWO
SOCIO-ECONOMIC STATUS AND STUDENT OUTCOMES (GAIN)

TABLE P-32

AUSTIN I (WITHIN-CLASS) (7/84)*

Outcome	Effect (Controlling for Class)	P	%V	Direction
Achievement	SES	.001	.61	H > L
(CTBS)	SES*Pretest	.001	.39	High SES: low pre, more gain Low SES: high pre, more gain
	SES* Eth	.01	.35	High SES: B; C > Angle Low SES: Angle > B, C
Self-esteem	SES(L)	.01	.33	H > L
(P-H)	SES (Missing)	.05	.21	Present > Missing
Attitude, General (SSC-A)	SES (Missing)	.05	.28	P > M
Coping, General	SES (L)	.01	.41	H > L

AUSTIN I (BETWEEN-CLASS) (1/5)

Outcome	Effect (Controlling for Class)	P	%V	Direction
Coping, General	SES (L)	.01	7.6	H > L

* A non-chance proportion of significant findings

TABLE P-32 (CONTINUED)

AUSTIN II (WITHIN-CLASS) (6/84)*

Outcome	Effect (Controlling for Class)	P	V%	Direction
Achievement	SES(L)	.00	.52	H > L
Coping, Academic	SES(L)	.00	.79	H > L
Peer (BRS-OR)	SES(L) controlling Eth	.00	.51	
Coping, Academic	SES(L)	.00	1.84	H > L
Self (BRS-SR)	SES(L) controlling Eth	.00	1.11	H > L
Attitude, General (SSC-A)	SES(M)	.03	.34	P > M

AUSTIN II (BETWEEN-CLASS) (4/8)*

Achievement	SES(L)	.03	6.4	H > L
Self-esteem (SSD)	SES(L)	.05	5.9	H > L
Coping, Academic Self (BRS-SR)	SES(L)	.05	12.0	H > L
Evaluation of Class (HOWCLM - post)	SES(L)	.01	11.1	L > H

KENTUCKY (WITHIN-CLASS) (1/60)

Self-esteem (P-H)	SES(L)	.02	.38	H > L

(BETWEEN-CLASS) (1/5)

Coping, General (SSC-C)	SES(L)	.05	17.4	L > H

PROPOSITION THIRTY-THREE

INTERACTION EFFECTS ON STUDENT OUTCOMES OF STUDENT SOCIOECONOMIC STATUS AND TEACHER BEHAVIOR

TABLE P-33

Outcome	SES x Teacher	p Value	% Var
	AUSTIN I - WITHIN (4/75)*		
Self-esteem (PH)	X * SES * COR-KU	p <.05	.39
Attitude General (SSC-A)	SES * COR-KU	p <.01	.61
	SES * COR-SO	p <.01	8.2
Attitude, School (SSI)	SES x COR-SO	p <.05	.39
	AUSTIN I - BETWEEN (4/45)*		
Attitude, General (SSC-A)	SES * KU	.02	6.10
Attitude, School (SSI)	SES * COR-SO	.03	4.61
Coping, General (SSC-C)	SES * SO	.02	6.93
	SES * SO	.01	7.57
	AUSTIN II - WITHIN (1/120)		
Self-esteem (SSD)	SSD * SES * COR-KU	.01	.97
Coping, Academic Peer (SKS-OR)	SES * COR-SO (Q)	.02	.29
	AUSTIN II - BETWEEN (4/63)*		
Attitude, School (SSI)	SES * COR-SO (Q)	.05	6.50
Coping, General	SES * COR-KU (S+Q)	.03	9.43
	*COR-SO (Q)	.02	11.63
Coping, Academic Peer	SES * COR-SO (Q)	.05	6.50
	SES * COR-SO (Q)	.04	4.48
	KENTUCKY I - WITHIN (0/90)		
	None		
	KENTUCKY I - BETWEEN (0/45)		
	None		

PROPOSITION THIRTY-FOUR

MATCHING OF STUDENT ETHNICITY WITH TEACHER TYPES

TABLE P-34

	AUSTIN I			AUSTIN II		
TEACHERS	High	Average	Low	High	Average	Low
	17	20	16	12	22	9
STUDENTS						
Anglo	398	422	325	373	564	201
Black	73	101	71	22	113	45
Chicano	71	95	91	45	115	35
ACHIEVEMENT						
(Class Means)	504	484	477	77	68	64

PROPOSITION THIRTY-FIVE

ETHNICITY AND STUDENT ENTRY CHARACTERISTICS

TABLE P-35

AUSTIN I (WITHIN CLASS) (3/16)*

Entry	Effect	P	%V	Direction
Achievement (CTBS)	Eth	.001	15.57	A > C > B
Coping - Academic Peer (BRS-OR)	Eth	.001	9.38	A > C > B
Coping - Academic Self (BRS-SR)	Eth	.001	2.52	A > C > B

AUSTIN I (GENERAL, POOLING STUDENTS ACROSS CLASSES)

Entry	Effect	P	%V	Direction
Achievement (CTBS)	Eth	.001	19.9	A > C > B
	Eth, controlling SES	.001	11.2	A > C > B
	A vs C	.001	6.8	A > C
	C vs B	.001	1.5	C > B
Coping - Academic Peer (BRS-OR)	Eth	.001	9.5	A > C > B
	Eth, controlling SES	.001	6.4	A > C > B
	A vs C	.001	1.0	A > C
	C vs B	.001	2.6	C > B

AUSTIN II (WITHIN CLASS) (8/40)*

Entry	Effect	P	%V	Direction
Achievement (GMG)	Eth	.00	9.32	A > C > B
	Eth: A vs C	.00	3.70	A > C
	C vs B	.00	.50	C > B
	A vs B	.00	7.00	A > B
Coping - Academic Peer (BRS-OR)	Eth	.00	1.78	A > C > B
	Eth: A vs B	.00	1.70	A > B
	B vs C * SES (Q)	.01	.39	
	Eth * SES (Q)	.04	.41	

Anglos: BRS-OR rises with status

Chicanos: BRS-OR rises between middle and high status

Blacks: BRS-OR rises at middle status, falls again at high status

PROPOSITION THIRTY-SIX

ETHNICITY AND INDIVIDUAL COPING BEHAVIOR (TEACHER-RATED)

TABLE P-36

AUSTIN I (WITHIN) (6/8)*

Entry	Effect	P	%V	Direction
Coping-Academic	Eth	.00	13.4	A = C > B
Teacher (SD)	Eth: A vs C	NS		A = C
	C vs B	.00	5.8	C > B
	A vs B	.00	13.4	A > B
Coping - Social - Emotional	Eth	.00	15.1	A = C > B
Teacher (SD)	Eth: A vs C	NS		A = C
	C vs B	.00	10.8	C > B
	A vs B	.00	14.0	A > B

AUSTIN II (WITHIN) (9/16)*

Entry	Effect	P	%V	Direction
Coping - Academic	Eth	.00	2.8	A = C > B
Teacher (SD)	Eth: A vs C	NS		A = C
	C vs B	.04	1.8	C > B
	A vs B	.01	2.6	A > B
	A vs C* Pretest(Q)	.03	1.7	
Coping-Social-Emotional	Eth	.03	2.7	A = C > B
Teacher (SD)	Eth: A vs C	NS		A = C
	C vs B	.02	2.3	C > B
	A vs B	.02	2.1	A > B
	Eth * Pretest(Q)	.04	2.5	
	A vs C * Pretest(Q)	.03	1.8	
			2.2	

PROPOSITION THIRTY-SEVEN

ETHNICITY AND TIME ON TASK

TABLE P-37

AUSTIN I (WITHIN) (3/8)*

Entry	Effect	P	%V	Direction
Time on Task	Eth	.00	3.4	A > C = B
	Eth: A vs C	.03	1.0	A > C
	C vs B	NS		
	A vs B	.00	2.8	A > B

AUSTIN II (WITHIN) (3/16)*

Entry	Effect	P	%V	Direction
Time on Task	Eth * Sex	.01	2.2	
	A vs C * Sex	.02	1.4	
	A vs B * Sex	.03	1.2	

PROPOSITION THIRTY-EIGHT

ETHNICITY AND STUDENT OUTCOMES (GAIN)

TABLE P-38

AUSTIN 1 (WITHIN) (18/36)*

Outcome	Effect (Controlling Class and Pretest)	P	%V	Direction
Achievement	Eth	.001	.61	A > B > C
(CTBS)	Eth: A vs B	.03	.17	A > B
	A vs C	.001	.56	A > C
	Pretest * Eth	.001	1.57	
	Pretest * Eth: A vs B	.001	1.55	
	SES * Eth	.01	.35	
Self-esteem	Eth	.01	.43	A > B > C
(PH)	Eth: A vs B	.00	.39	A > B
Attitude - School	Pretest * Eth	.05	.29	
(SSI)	Pretest * Eth: A vs B	.01	.29	
Attitude - General	Eth	.01	.59	C > A > B
(SSC-A)	Eth: A vs B	.001	.57	A > B
	C vs B	.01	.37	C > B
Coping - General	Eth	.01	.51	A > C > B
(SSC-C)	Eth: A vs B	.01	.51	A > B
	C vs B	.05	.19	C > B
	Pretest * Eth	.05	.31	
	Pretest * A vs B	.05	.28	

*Non-chance proportion of significant effects

TABLE P-38 (CONTINUED)

Outcome	Effect (Controlling Class and Pretest)	P	%V	Direction
Achievement	Eth	.03	.18	A > C > B
(GMG)	Eth: A vs B	.04	.10	A > B
Coping - General	Eth	.00	.77	A > C > B
(SSC-A)	Eth: A vs B	.00	.73	A > B
	Eth (controlling SES)	.00	.71	A > C > B
Coping - Achievement	Eth	.00	.98	A > C > B
Peer (BRS-OR)	Eth: A vs B	.00	.94	A > B
	C vs B	.00	.68	
	Eth (controlling SES)	.00	.70	A > C >B
Coping - Academic	Eth	.00	1.95	A > C > B
Self (BRS-SR)	Eth: A vs B	.00	1.95	A > B
	C vs B	.00	1.06	C > B
	Eth (Controlling SES)	.00	1.23	A > C > B

PROPOSITION THIRTY-NINE

EFFECTS ON STUDENT OUTCOMES OF ETHNICITY INTERACTING WITH TEACHER BEHAVIOR

TABLE P-39

AUSTIN I (WITHIN) (8/18)*

Outcome	Effect	P	% V
Self-esteem (PH)	Eth * COR-SI (L)	.004	.50
	Eth * COR-SI (Q)	.04	.29
Attitude - General (SSC-A)	Eth * COR-KU (L)	.001	.75
	Eth * COR-KU (Q)	.02	.41
	Eth * COR-KU (L)	.002	.72
Coping - General (SSC-C)	Eth * COR-KU (L)	.006	.56
	Eth * COR-SO (L)	.01	.51
	Eth * COR-SI (L)	.01	.47

AUSTIN II (WITHIN) (0/24)

None signifcant

PROPOSITION FORTY

SEX AND STUDENT ENTRY LEVELS

TABLE P-40

AUSTIN I (WITHIN) (6/7)*

Entry	Effect	P	% V	Direction
Achievement (CTBS)	Sex	.001	.86	F > M
Attitude - School (SSI)	Sex	.001	3.68	F > M
Attitude - General (SSC-A)	Sex	.001	1.71	F > M
Coping - General (SSC-C)	Sex	.01	.40	F > M
Coping - Academic Peer (BRS-OR)	Sex	.001	5.94	F > M
Coping - Academic Self (BRS-SR)	Sex	.001	1.00	F > M

AUSTIN II (WITHIN) (4/8)*

Attitude - School (SSI)	Sex	.00	2.64	F > M
Attitude - General (SSC-A)	Sex	.00	1.11	F > M
Coping - General (SSC-C)	Sex	.00	1.79	F > M
Coping - Academic Peer (BRS-OR)	Sex	.00	2.64	F > M

KENTUCKY (WITHIN) (5/8)*

Attitude - School (SSI)	Sex	.00	1.44	F > M
Attitude - General (SSC-A)	Sex	.00	1.25	F > M
Coping - General (SSC-C)	Sex	.00	1.62	F > M
Coping - Academic Peer (BRS-OR)	Sex	.00	3.80	F > M
Coping - Academic Self (BRS-SR)		.05	.53	F > M

PROPOSITION FORTY-ONE

SEX AND CLASSROOM COPING BEHAVIOR

TABLE P-41

AUSTIN I (WITHIN) (2/2)*

Coping	Effect	P	% V	Direction
Academic	Sex	.01	4.48	F > M
Social - Emotional	Sex	.01	4.23	F > M

AUSTIN II (WITHIN) (2/2)*

Coping	Effect	P	% V	Direction
Academic	Sex	.01	3.08	F > M
Social - Educational	Sex	.00	4.86	F > M

KENTUCKY (WITHIN) (2/2)*

Coping	Effect	P	% V	Direction
Academic	Sex	.01	4.45	F > M
Social - Emotional	Sex	.01	4.83	F > M

PROPOSITION FORTY-TWO

SEX AND TIME ON TASK

TABLE P-42

AUSTIN I (WITHIN) (1/1)*

Time on Task	Effect	P	% V	Direction
TOT	Sex	.01	2.22	F > M

AUSTIN II (WITHIN) (1/1)*

TOT	Sex	.01	1.58	F > M

KENTUCKY (WITHIN) (0/1)

Not significant

PROPOSITION FORTY-THREE

SEX AND STUDENT OUTCOMES (GAIN)

TABLE P-43

AUSTIN I (WITHIN) (4/5)*

Outcome	Effect	P	% V	Direction
Achievement (CTBS)	Sex	.001	.91	F > M
Attitude - School (SSI)	Sex	.001	.75	F > M
Attitude - General (SSC-A)	Sex	.001	.84	F > M
Coping - General (SSC-C)	Sex	.001	.83	F > M

AUSTIN II (WITHIN) (3/7)*

Outcome	Effect	P	% V	Direction
Achievement (GMG)	Sex	.02	.13	F > M
Attitude - School (SSI)	Sex	.02	.39	F > M
Coping - Academic Peer (BRS-OR)	Sex	.00	1.45	F > M

KENTUCKY (WITHIN) (3/5)*

Outcome	Effect	P	% V	Direction
Attitude - School (SSI)	Sex	.02	.53	F > M
Attitude - General (SSC-A)	Sex	.00	.97	F > M
Coping - General (SSC-C)	Sex	.00	1.62	F > M

An Evaluation of Instruments
Measuring Cognitive, Affective and Coping
Skills of School-Age Children

Robert F. Peck, Brad A. Manning,
and Donna M. Buntain

The Research and Development Center for Teacher Education

The University of Texas at Austin

Fall 1977

R & D Report No. 2372

The research reported herein was supported in part by National Institute of Education Contract NE-C-00-3-0066, Research and Development Center for Teacher Education. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

The authors especially thank Steve Dement, Melissa Koenig, Glenda Torrence, and Carol Walton for their efforts to locate information on these instruments.

In an extensive search of the literature for instruments measuring cognitive, affective and coping skills of elementary aged children, 409 instruments were surveyed and classified according to available information on reliability and validity for each instrument. Of the 409 instruments surveyed, only 55 instruments (13.4%) received high ratings for both reliability and validity. Thirty-nine instruments received a high rating for either reliability or validity, while incomplete information was available for a remaining 31 instruments (ten of which received a high rating in either reliability or validity). The remaining 284 instruments surveyed were considered to be low in both reliability and validity.

This report includes a categorized listing of the following instruments:

Instruments which received fair to high ratings on both reliability and validity;

Instruments which received a high rating in either reliability or validity, and a low rating in either reliability or validity;

Instruments missing information on either reliability or validity, or both.

The following categorized listing includes the title of the instrument, the author of the instrument, and the source of the estimate of reliability and validity. In addition, the instruments are grouped into the following broad areas: 1) instruments measuring cognitive skills; 2) instruments measuring affective skills; and, 3) instruments measuring miscellaneous skills.

Finally, an overall listing of all 409 instruments surveyed is included, broken into cognitive, affective and miscellaneous categories.

Type of Skill Measured	Hi rel. Hi val.	Hi rel. Lo val.	Lo rel. Hi val.	Hi rel. No val.	Lo rel. No val.	Hi val. No rel.	No val. No rel.	TOTALS
Cognitive	15	2	20	3			6	46
Affective	26		10	6			7	49
Miscellaneous	14	1	6			1	7	29
TOTALS	55	3	36	9		1	20	124
% based on 409 surveyed instruments	13.4%	.73%	8.8%	2.2%		.24&	4.8%	30.3%

INSTRUMENTS MEASURING
COGNITIVE SKILLS

I. Cognitive Skills

CATEGORY: Instruments which measure cognitive skills which are categorized as high validity and high reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Comprehensive Tests of Basic Skills (CTBS)	McGraw-Hill	Buros, 1972 (Technical Report)
Concept Assessment Kit	not given	CSE
Cooperative School and College Ability Tests	not given	UCLA, CSE - RBS
Educational Development Series	not given	UCLA, CSE - RBS
Florida Taxonomy of Cognitive Behavior (FTCB)	Brown, B., Ober, R., Soar, R., & Webb, J. N.	Dunkin & Biddle, 1974
Henmon-Nelson Tests of Mental Ability	not given	UCLA, CSE - RBS
Kuhlman-Anderson Test - A Measure of Academic Potential	Kuhlman, F., & Anderson, R. G.	UCLA, CSE - RBS
Lorge - Thorndike Intelligence Test	not given	UCLA, CSE - RBS
Otis - Lennon Mental Ability Test	not given	UCLA, CSE - RBS
Pennsylvania Questionnaire	not given	UCLA, CSE - RBS
The Q-Tags Test of Personality	Storey, A. G., & Masson, L. I.	Buros, 1972
Reed Science Activity Inventory	Reed, H. B., Jr.	Cooley & Reed, 1961
SRA Test of Educational Ability	not given	UCLA, CSE - RBS
Wechsler Intelligence Scale for Children	not given	UCLA, CSE - RBS
Wechsler Preschool and Primary Scale of Intelligence	not given	UCLA, CSE - RBS

Cognitive Skills Continued

CATEGORY: Instruments which measure cognitive skills which are categorized as high reliability and low validity

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Metropolitan Readiness Tests	not given	UCLA, CSE - RBS
Primary Mental Abilities	not given	UCLA, CSE - RBS

880

Cognitive Skills Continued

CATEGORY: Instruments which measure cognitive skills which are categorized as high validity and low reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Benton Visual Retention Test	not given	UCLA, CSE - RBS
California Test of Personality	not given	UCLA, CSE - RBS
Concept Assessment Kit--Conservation, Form C	not given	UCLA, CSE - RBS
Illinois Test of Psycholinguistic Abilities	not given	UCLA, CSE - RBS
Kuhlmann-Anderson Measure of Academic Potential	not given	UCLA, CSE - RBS
Kuhlmann-Finch Tests	not given	UCLA, CSE - RBS
A Look at Literature	not given	UCLA, CSE - RBS
Marianne Frostig Developmental Test of Visual Perception	not given	UCLA, CSE - RBS
Mental Ability: Elementary and Advanced	not given	UCLA, CSE - RBS
Measures of Cognitive Abilities	not given	UCLA, CSE - RBS
OST (Object Sorting Task)	not given	UCLA, CSE - RBS
Performance Test of Mathematics Inquiry	not given	UCLA, CSE - RBS
Pictorial Test of Intelligence	not given	UCLA, CSE - RBS
Porteus Maze Tests, Vineland Form	not given	UCLA, CSE - RBS
Primary Mental Abilities	not given	UCLA, CSE - RBS
Standardized Road-Map Test of Direction Sense	not given	UCLA, CSE - RBS

Cognitive Skills Continued

CATEGORY: Instruments which measure cognitive skills which are categorized as high validity and low reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Stanford-Binet Intelligence Scale	not given	Hoepfner, 1970
Test of Educational Ability	not given	UCLA, CSE - RBS
Tests of General Ability	not given	UCLA, CSE - RBS
Torrance Test of Creative Thinking	not given	UCLA, CSE - RBS

882

Cognitive Skills Continued

CATEGORY: Instruments which measure cognitive skills which are categorized as high reliability and are missing information on validity.

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Physics Achievement Test	Ahlgren, Walberg, & Welch	Walberg, H. J., Anderson, G. J.
Pupil Activity Inventory	Cooley & Reed	Walbert, H. J., Anderson, G. J.
Rating-Ranking Scales for Child Behavior	Cromwell, R. L., Davis, Dan, & Held, Joan	Johnson, O. G., & Bommarito, J. W. 1971

Cognitive Skills Continued

CATEGORY: Instruments which measure cognitive skills and are categorized as having missing information on reliability and validity.

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Form A of the Goldschmid and Bentler Concept Assessment Kit	Goldschmid and Bentler	Bardin, D. R., & Moan, C. E. 1971
Intellectual Achievement Responsibility Scale	not given	North Carolina Advancement School, 1969
Metropolitan Readiness Tests (MRT)	not given	Asmundson, M. S. 1972
Topic Classification System	Gallager, et al	Rosenshine, B.
Wizard of Oz Preliminary Screening Program	not given	Asmundson, M. S. 1972
not given	not given	Schwarz, J. C.

INSTRUMENTS MEASURING AFFECTIVE SKILLS

II. Affective Skills

CATEGORY: Instruments that measure affective skills which are categorized as having high validity and high reliability.

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
About You and Your Friends	Agard, J. A., & Harrison, S. M.	Borich, G., & Madden, S. 1976
Adjective Check List	Davidson, H. H., & Lang, G.	Johnson, O. G., & Bommarito, J. W. 1971
Aptitude Treatment Interaction Study (ATI)	Wallen, N.	Wallen, N. 1969
Audience Sensitivity Inventory (ASI) & Children's Aus. Sensitivity Inventory (CASI)	Paivio, A.	Lake, D. G., Miles, M. B., & Earle, R. B., Jr. 1973
California Study Methods Survey (CSMS)	Carter, H. D.	Williams, R. C. 1970
Children's Manifest Anxiety Scale	not given	UCLA, CSE - RBS
Children's Repsonsibility Inventory	Zunich, M.	Johnson, O. G., & Bommarito, J. W. 1971
Dependence Proneness Scale	Flanders, N. A., Anderson, P., & Amidon, E. J.	Johnson, O. G., & Bommarito, J. W. 1971
Elementary School Index of Adjustment & Values	Bills, R. E.	Johnson, O. G., & Bommarito, J. W. 1971
Elementary Social Causality Test	Ojemann, R. H., Levitt, E. E., Lyle, Wm. H., Jr., & Whiteside, M. F.	Johnson, O. G., & Bommarito, J. W. 1971
Elias Family Opinion Survey	not given	UCLA, CSE - RBS
The Faces Scale	Frymier, J. R.	Coller, A. R.
Guess Who	Agard, J. A.	Borich, G., & Madden, S. 1976
Intellectual Achievement Responsibility Quest.	Crandall, V. C., Katkovsky W., & Crandall, V. J.	Johnson, O. G., & Bommarito, J. W. 1971
Junior Personality Quiz (JPQ)	Cattell, R. B., Flint, D., & Beloff, J.	Cattell, R. B., & Beloff, H. 1953

Affective Skills Continued

CATEGORY: Instruments that measure affective skills which are categorized as having high validity and high reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Index of Adjustment & Values	Bills, R. E., Vance, & McLean	Coller, A. R.
Kinder General Interest Survey	not given	UCLA, CSE - RBS
Leeds' "My Teacher" Inventory	Leed, E.	Gage, N. L., Leavitt, G. S., & Stone, G. C.
Minnesota Personality Profile II	U. of Minn. Institute of Child Development & Welfare	Johnson, O. G., & Bommarito, J. W. 1971
	Borgatta, E. F.	
Piers-Harris Children's Self Concept Scale (The Way I Feel @ Myself)	Piers, E. V., & Harris, D. B.	Buros, O. K. 1972
Pittsburgh Adjustment Survey Scales	Ross, A. O., Lacy, H. M., & Parton, D. A.	Ross, A. O., Lacy, H. M., & Parton, D. A. 1965
Pupil Reaction Inventory	Medley, D. M.	Medley 1961
Self Concept Inventory	Sears, Pauline S.	Johnson, O. G., & Bommarito, J. W. 1971
Stages of Moral Development Scoring System	Kohlberg, L.	Lake, D. G., Miles, M. B., & Earle, R. B., Jr. 1973
Thomea Self Concept Values Test	Thomas, W. L.	Buros, O. K. 1972
Vineland Social Maturity Scale	Doll, E. A.	Ahmann, J. S., Glock, M. D., & Wardeberg, H. L. 1960

Affective Skills Continued

CATEGORY: Instruments that measure affective skills which are categorized as having high validity and low reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
About Me	not given	UCLA, CSE - RBS
Cases and Stars: Cases	not given	UCLA, CSE - RBS
Children's Locus of Control Scale	not given	UCLA, CSE - RBS
Inferred Self-Concept Judgement Scale	not given	UCLA, CSE - RBS
Junior E.P.I. (Eyesnck Personality Inventory)	not given	UCLA, CSE - RBS
Pennsylvania Questionnaire Interest in School	not given	UCLA, CSE - RBS
School Expectation Interview	not given	UCLA, CSE - RBS
SM (School Morale) Scale	not given	UCLA, CSE - RBS
Test Anxiety Scale for Children	not given	UCLA, CSE - RBS
What I Like To Do	not given	UCLA, CSE - RBS

888

Affective Skills Continued

CATEGORY: Instruments which measure affective skills which are categorized as high reliability and are missing information on validity

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Lipsitt Self Concept Scale for Children	Lipsitt, L. P.	Johnson, O. G., & Bommarito, J. W. 1971
Modification of Preferred Instructors Characteristics Scale (PICS)	Nelson, C. C.	Nelson, C. C. 1964
Preferred Student Characteristics Scale (PSCS)	Nelson, C. C.	Nelson, C. C. 1964
The Self Concept and Motivation Theory	Farrah, G. A., Milchus, N. J., & Reitz, W.	Coller, A. R.
Semantic Differential for Science Students		Walberg, H. J., & Anderson, G. J.
The Unforced Teacher Rating Scale "Our Teacher"	Gage, et al	Gage, N. L., Leavitt, G. S., & Stone, G. C. 1955

Affective Skills Continued

CATEGORY: Instruments which measure affective skills and which are categorized as having missing information on validity and reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Check Sheet of Opportunity in Human Relations	Cunningham, R., & Assoc.	Johnson, O. G., & Bommarito, J. W. 1971
Family Adjustment Test	G. Elias	Horrocks, J. E. 1964
The Forced-Choice Rating Scale	Gage, et al	Gage, N. L., & et al 1955
The Guilford-Martin Personnel Inventory	Guilford, J. P., & Martin, H. G.	Buros, O. K. 1972
How Do You Feel--Part I & II	not given	not given
Money Problem Checklists	Mooney, R. L.	Adams, & et al 1956
Psychosocial Maturity (PSM)	not given	Smithsonian Science Information Exchange 1973

INSTRUMENTS MEASURING
MISCELLANEOUS SKILLS

III. Miscellaneous Skills

CATEGORY: Instruments that measure miscellaneous skills which are categorized as having high validity and high reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Acceptance of Self and Others	Berger, E.	Shaw, M. C., & et al.
Barclay Classroom Climate Inventory	Barclay, J. R.	Barclay, J. R.
The Chapin Social Insight Test	Chapin, F. S.	Buros, 1972
Human Relations Inventory	Bernberg, R. E.	Buros, 1959
Seating Preference (Power of Influence Test)	not given	UCLA, CSE - RBS
The Self Concept as a Learner Scale - Elementary (SCALE)	Fisher, J. K.	Coller, A. R.
Survey of Study Habits & Attitudes (SSHA)	Brown, W. F., & Holtzman, W. H.	Holtzman, W. H., & Brown, W. F. 1968
Teacher-Pupil Question Inventory (TPQI)	Davis, O. L., Jr., & Tinsley, D. C.	Dunkin, M. J., & Biddle, B. J. 1974
Teacher Rating Scale	Agard, J. A., & Harrison, S.	Borich, G., & Madden, S. 1976
Teacher's Rating Questionnaire (TRQ)	Wright, C. M.	Johnson, O. G., & Bommarito, J. W. 1971
Tenenbaum Questionnaire	Tenebaum, S.	Tenebaum, S.
Tennessee Self Concept Scale	Fitts, W. H.	Godfrey, W. (Ed.) 1970
Test of the Teacher's Ability to judge Inter-pupil preference	Gage, Leavitt, & Stone	Gage, N. L., Leavitt, G. S., & Stone, G. C. 1955
Your School Days	Agard, J. A., & Harrison, S. M.	Borich, G., & Madden, S. 1976

892

Miscellaneous Skills Continued

CATEGORY: Instruments which measure miscellaneous skills which are categorized as having high reliability and low validity

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Teaching Situation Reaction Test (TSRT)	Hough, J. B., & Duncan, J. K.	Lake, & et al. 1973

Miscellaneous Skills Continued

CATEGORY: Instruments which measure miscellaneous skills which are categorized as having low reliability and high validity

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Behavior Cards: A Test-Interview for Delinquent Children	not given	UCLA, CSE - RBS
Class Activities Questionnaire	not given	UCLA, CSE - RBS
Florida Climate and Control System	not given	UCLA, CSE - RBS
Interaction Process Analysis	not given	UCLA, CSE - RBS
Oscar System (Oscar 5v)	not given	UCLA, CSE - RBS
Sequential Analysis of Verbal Interaction	not given	UCLA, CSE - RBS

Miscellaneous Skills Continued

CATEGORY: Instruments which measure miscellaneous skills which are categorized as having missing information on validity and low reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
The High School Characteristics Index (HSCI)	not given	Herr, E. L., & et al. 1967

Miscellaneous Skills Continued

CATEGORY: Instruments which measure miscellaneous skills which are categorized as having missing information on reliability and high validity

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
People in General	Banta, T. J.	Shaw, M. E., & Wright, J. M. 1967

896

Miscellaneous Skills Continued

CATEGORY: Instruments which measure miscellaneous skills which are categorized as having missing information on validity and reliability

TITLE	AUTHOR	SOURCE OF ESTIMATE OF RELIABILITY AND VALIDITY
Brownfain's Self Rating Inventory	not given	Smithsonian Science Information Exchange, 1973
Child Personality Scale	Amatora, S. M.	Horrocks, J. E. 1964
Children's Intellectual Achievement Responsibility Questionnaire	not given	North Carolina Advancement School 1968
The Ego Ideal and Conscience Development Test	Cassel, R. N.	Burros 1972
SMAG Student Attitude Inventory	Torrance, Dr. E. P.	UCLA, CSE - RBS
not given	not given	North Carolina Advancement School 1968
not given	not given	Allen 1971

References for Student Search

Adams, G. S., & Torgerson, T. L. Measurement and Evaluation. New York, New York: The Dryden Press, 1956.

Ahmann, J. S., Glock, M. D., & Wardeberg, H. L. Evaluating Elementary School Pupils. Boston, Massachusetts: Allyn and Bacon, Inc., 1960.

Allen, V. L. The development of conformity and independence. Report from the project on role theory analysis of peer-teaching techniques. Contract No. OEC-5-10-154. Madison, Wisconsin: Wisconsin University, Research and Development Center for Cognitive Learning, 1971. (ERIC ED 051 537.)

Asmundson, M. S. A preliminary screening program to identify functioning strengths and weaknesses in pre-school children. Masters Thesis, Moorhead State College, Minnesota, 1972. (ERIC ED 071 743.)

Barclay, J. R. Measuring the social climate of the classroom. Paper presented at the meeting of the American Educational Research Association, Symposium of Measuring the Social Climate of the Classroom, New York, New York, 1971. (ERIC ED 051 277.)

Borich, D., & Madden, S. Evaluating classroom instruction: Sourcebook of instruments. Austin, Texas: Addison - Wesley, 1977.

Buros, O. K. The fifth mental measurements yearbook. Highland Park, New Jersey: The Gryphon Press, 1959.

Buros, O. K. The seventh mental measurements yearbook. Highland Park, New Jersey: The Gryphon Press, 1972.

Buros, O. K. (Ed.) Tests in print. Highland Park, New Jersey: The Gryphon Press, 1961.

Cattell, R. B., & Beloff, H. Research origin and construction of the IPAT Junior Personality Quiz. Journal of Consulting Psychology, 1953, 17(6), 436-441.

Coller, A. R. The assessment of self-concept in early childhood education. Urbana, Illinois: ERIC Clearinghouse of Early Childhood Education, University of Illinois at Urbana-Champaign.

Cooley, W. W., & Reed, H. B. The measurement of science interests: An operational and multidimensional approach. Science Education, 1961, 45(4), 320-326.

Dunkin, M. J., & Biddle, B. J. The study of teaching. New York, New York: Holt, Rhinehart, and Winston, 1974.

Gage, N. L., Leavitt, G. S., & Stone, G. C. Teachers' understanding of their pupils and pupils' ratings of their teachers. Psychological Monographs, 1955, 69(406), 17-21.

References for student search continued

Godfrey, E. (Ed.) Intelligence, achievements, self-concepts, and attitudes among 1216 typical sixth- and seventh-grade students in fourteen North Carolina public Schools: Preliminary results of a study conducted January, 1970. Winston-Salem, North Carolina: North Carolina Advancement School, 1970. (ERIC ED 045 760.)

Herr, E. L., Kight, H. R., Hansen, J. C. The relation of students' needs to their perceptions of a high school environment. *The Journal of Educational Research*, 1967, *61*(2), 51-52.

Hoepfner, R., Hemenway, J., DeMuth, J., Tenopyr, M. L., Granville, A. C., Petrosko, J. M., Krakower, J., Silberstein, R., & Nadeau, M. A. *CSE-RBS test evaluations: Tests of higher-order cognitive, affective, and interpersonal skills*. Los Angeles, California: Center for the Study of Evaluation, University of California, 1972.

Holtzman, W. H., & Brown, W. F. Evaluating the study habits and attitudes of high school students. *Journal of Educational Psychology*, 1968, *59*(6), 404-409.

Horrocks, J. E. *Assessment of behavior*. Columbus, Ohio: Charles E. Merrill Books, Inc., 1964.

Johnson, O. G., & Bommarito, J. W. *Tests and measurements in child development: A handbook*. San Francisco, California: Jossey Bass, Inc., 1971.

Lake, D. G., Miles, M. B., & Earle, R. B. *Measuring human behavior*. New York, New York: Columbia University, Teachers College Press, 1973.

Medley, D. M. Teacher personality and teacher-pupil rapport. *Journal of Teacher Education*, 1961, *12*(2), 152-153.

Nelson, C. C. Affective and cognitive attitudes of junior high school teachers and pupils. *The Journal of Educational Research*, 1964, *58*(2), 81-83.

North Carolina Advancement School. A research report of the North Carolina Advancement School: Spring semester 1968 follow-up. Winston-Salem, North Carolina: North Carolina Advancement School, 1969. (ERIC ED 045 762.)

Rardin, D. R., & Moan, C. E. Peer interaction and cognitive development. *Child Development*, 1971, *52*(5), 1685-1699.

Rosenshine, B. Evaluation of classroom instruction. *Review of Educational Research*, *40*(2), 287.

Ross, A. O., Lacy, H. M., & Parton, D. A. The development of a behavior checklist for boys. *Child Development*, 1965, *36*, 1013-1027.

Schwartz, J. D. The effects of novel stimulation on arousal level in young children alone and with a friend. Report No. OEO-4120. New York, New York: Syracuse University, 1969. (ERIC ED 057 894.)

Shaw, M. E., & Wright, J. M. *Scales for the measurement of attitudes*. New York, New York: McGraw-Hill, 1967.

References for student search

Smithsonian Science Information Exchange, Inc., Washington, D. C.: The Smithsonian Institute, 1973.

Tenenbaum, S. A test to measure a child's attitude toward school, teachers, and classmates. Education Administration and Supervision, 26(3), 176-188.

Walberg, J. J., & Anderson, G. J. Classroom climate and individual learning. Journal of Educational Psychology, 59, 415.

Wallen, N. The Taba Curriculum Development Project in social studies, Development of a comprehensive curriculum model for social studies for Grades 1-8 inclusive of precedures for implementation and dissemination. Final Report. San Francisco, California: San Francisco State College, 1969. (ERIC ED 040 106.)

Williams, R. C. Personality, ability, and achievement correlates of scholastic attitudes. Journal of Educational Research, 1970, 63(9), 401-403.

900

MISCELLANEOUS

1.	About You and Your Friends	Kaufman, Semmel & Agard
2.	Acceptance of Self and Others	Shaw & Wright
3.	Achievement	Krumboltz & Farquhar
4.	No title given	Allen
5.	Allport-Vernon-Lindzey Study of Values (AVL)	Walberg
6.	Audience Sensitivity Inventory (ASI) and Children's Audience Sensitivity Inventory (CASI)	Lake, Miles & Earle
7.	Barclay Classroom Climate Inventory	Barclay
8.	Beller Child Dependency and Independence Scales	Walker
9.	California Preschool Social Competency Scale	UCLA, CSE - RBS
10.	Cases and Cases	UCLA, CSE - RBS
11.	No title given	Caughren; Buros, 1959
12.	The Chapin Social Insight Test	Buros, 1972
13.	Check Sheet of Opportunity in Human Relations	Johnson & Bommarito
14.	Children's Responsibility Inventory	Johnson & Bommarito
15.	Class Activities Questionnaire - Classroom Climate	UCLA, CSE - RBS
16.	Cryles System	UCLA, CSE - RBS
17.	Diagnostic Instrument of Supervision	UCLA, CSE - RBS
18.	The Ego Ideal and Conscience Development Test	Buros, 1972
19.	The Ego Strength Q-Sort Test	Buros, 1956
20.	The Empathy Test	Buros, 1956
21.	Experimental Measure of Motivation	Caughren
22.	Fink Interaction Analysis System	UCLA, CSE - RBS
23.	First Grade Adjustment Scale - Social Behavior	UCLA, CSE - RBS
24.	Florida Climate and Control System	UCLA, CSE - RBS
25.	Forty-eight Item Counseling Evaluation Test - Friendship	UCLA, CSE - RBS

Miscellaneous Continued

26.	Group Dimensions Descriptions Questionnaire	Walberg
27.	Guess Who	Kaufman, Semmel & Agard
28.	The Guilford-Martin Personnel Inventory	Buros, 1956
29.	Hand Skills Test, Navy Activities Preference Blank, and Navy Adjectives List on Self-Concept	Lau, & et al.
30.	Heston Personal Adjustment Inventory	Buros, 1956
31.	The High School Characteristics Index (HSCI)	Herr, Kight, & Hansen
32.	Human Relations Inventory	Buros, 1959
33.	Inpatient Multidimensional Psychiatric Scale	Lorr & Klett
34.	Intellectual Achievement Responsibility Questionnaire	Johnson & Bommarito
35.	Intellectual Achievement Responsibility	Godfrey
36.	Interaction Process Analysis	UCLA, CSE - RBS
37.	Modification of Preferred Instructors Characteristics Scale (PICS)	Nelson
38.	Oscar System (Oscar 5V)	UCLA, CSE - RBS
39.	People in General	Shaw & Wright
40.	Personal History Index - Leadership and Group Participation, Parental Family Adjustment	UCLA, CSE - RBS
41.	The Preferred Instructor	Krumboltz & Farquhar
42.	Pre-Kindergarten Scale	UCLA, CSE - RBS
43.	Psychosocial Maturity (PSM)	Smithsonian Science
44.	Rating-Ranking Scales for Child Behavior	Johnson & Bommarito
45.	Techniques for Measuring Coping Ability	Rothenberg
46.	Seating Preference (Power of Influence Test)	UCLA, CSE - RBS
47.	Sequential Analysis of Verbal Interaction	UCLA, CSE - RBS
48.	Sociometric Questionnaire (For Teachers) Appendix A, Pt. 1	UCLA, CSE - RBS
49.	SRA Youth Inventory	Adams & Torgerson
50.	Study of Values	Horrocks

Miscellaneous Continued

51.	Teacher's Rating Questionnaire (TRQ) Elementary Grades	Johnson & Bommarito
52.	Teacher Rating Scale	Kaufman, Simmel & Agard
53.	Teaching Situation Reaction Test (TSRT)	Lake, Miles & Earle
54.	Test for Ability To Sell - Tests I & III	UCLA, CSE - RBS
55.	Vineland Social Maturity Scale	Almann, Glock & Wardeberg
56.	Your School Days	Kaufman, Simmel & Agard

AFFECTIVE DOMAIN

1.	About Me	UCLA, CSE - RBS
2.	Academic Interests Measures	UCLA, CSE - RBS
3.	Achievement Anxiety Test (Facilitative-Debilitative)	UCLA, CSE - RBS
4.	Attitude Toward School K-12 Imagine That (Secondary); School Sentiment Index (Primary and Secondary); Subject Area Preferences (Intermediate, Secondary)	UCLA, CSE - RBS
5.	Attitude Toward School K-12 (Aspirations of Grade Level Completion)School Sentiment Index, Intermediate) (Compliance with Assigned Tasks)	UCLA, CSE - RBS
6.	Behavior Rating Form for Appraising Assured and Confident Behaviors (Self Esteem Behavior)	UCLA, CSE - RBS
7.	Biographical Inventory - Creativity	UCLA, CSE - RBS
8.	Brownfain's Self Rating Inventory	Smithsonian Science Information Exchange
9.	California Occupational Preference Survey	UCLA, CSE - RBS
10.	Carel Instruments Forms S-B, S-C, S-D	UCLA, CSE - RBS
11.	Carel Instruments Form S-B My Classmates and I, Section II	UCLA, CSE - RBS
12.	Carel Instruments Form T-A Teacher's Staff Encounters	UCLA, CSE - RBS
13.	Child Behavior Rating Scale - Home Adjustment, Social Adjustment, School Adjustment	UCLA, CSE - RBS
14.	Child Personality Scale	Horrocks
15.	Children's Locus of Control Scale	UCLA, CSE - RBS
16.	Children's Manifest Anxiety Scale	UCLA, CSE - RBS; Castaneda, McCandless & Palermo
17.	No title given	Clark
18.	Cotswold Personality Factor - F Scale (Attitude Toward School)	UCLA, CSE - RBS
19.	CPF - Contact Personality Factor Form A	UCLA, CSE - RBS

Affective Domain Continued

20.	A Dating Problems Checklist (Physical Self, Social Poise)	UCLA, CSE - RBS
21.	A Dating Problems Checklist Dating Conditions, Dating and Definite Commitments, Personality and Emotional Self, Home Parents, Family	UCLA, CSE - RBS
22.	Demos D (Drop-Out) Scale	UCLA, CSE - RBS
23.	Depression Adjective Checklists Form A	UCLA, CSE - RBS
24.	Detroit Adjustment Inventory Delta Form: Self School	UCLA, CSE - RBS
25.	Dimensions of Temperament and Early School Personality	UCLA, CSE - RBS
26.	Questionnaire	UCLA, CSE - RBS
27.	E-D Inventory	UCLA, CSE - RBS
28.	Educational Development Series School Interests	UCLA, CSE - RBS
29.	Edwards Personality Inventory	UCLA, CSE - RBS
30.	Edwards Personal Preference Schedule (Heterosexuality)	UCLA, CSE - RBS
31.	Edwards Personal Preference Schedule (EPPS)	Walberg
32.	Elementary School Index of Adjustment and Values	Johnson & Bommarito
33.	Elias Family Opinion Survey, Total Test	UCLA, CSE - RBS
34.	The Faces Scale	Coller
35.	Family Adjustment Test	Horrocks
36.	FIRO-B Fundamental Interpersonal Relations Orientation Behavior	Buros, 1972: UCLA, CSE - RBS; Schutz
37.	FIRO-F Wanted Affection	UCLA, CSE - RBS
38.	First Grade Adjustment Scale - Emotional Behavior, Adjustment to Classroom Membership and Requirements	UCLA, CSE - RBS
39.	FL (Fluency) Opinion Survey - Selected Items	UCLA, CSE - RBS
40.	The Forced - Choice Rating Scale	Gage, Leavitt & Stone
41.	Forty-eight Item Counseling Evaluation Test	UCLA, CSE - RBS
42.	The Giest Picture Interest Inventory Form F, Male and Female	UCLA, CSE - RBS

Affective Domain Continued

43.	Gordon Personal Inventory - Cautiousness, Personal Relations, Original Thinking	UCLA, CSE - RBS
44.	Gordon Personal Profile - Ascendance, Emotional Stability, Sociability, Responsibility	UCLA, CSE - RBS
45.	Hall Occupational Orientation Inventory	Bailey
46.	Handicap Problems Inventory - Family	UCLA, CSE - RBS
47.	Handicap Problems Inventory (2 Parts: Personal and Social)	UCLA, CSE - RBS
48.	Heltzel's Measure of Motives Influencing Needs to Achieve in Vocational Education	Bailey
49.	How Do You Feel - Part I	Kaufman, Semmel & Agard
50.	How Do You Feel - Part II	Kaufman, Semmel & Agard
51.	Index of Adjustment and Values	Coller
52.	Inferred Self-Concept Judgement Scale	UCLA, CSE - RBS; McDaniel
53.	Inter-Person Perception Test, Form AC (Children)	UCLA, CSE - RBS
54.	Jim Scale Student Questionnaire Form F	UCLA, CSE - RBS; Rogers
55.	Junior E.P.I. (Eysenck Personality Inventory) Neuroticism	UCLA, CSE - RBS
56.	Junior E.P.I. (Eysenck Personality Inventory) Extraversion	UCLA, CSE - RBS
57.	Junior High School Articulation Scale	UCLA, CSE - RBS
58.	Jr. - Sr. HSPQ (High School Personality Questionnaire) Form A, Factors F, H, C, O, D, Q3	UCLA, CSE - RBS
59.	Jr. - Sr. HSPQ (High School Personality Questionnaire) Form A, Factors E, Q4, 1G	UCLA, CSE - RBS
60.	Jr. - Sr. HSPQ (High School Personality Questionnaire) Form A, Factors A, J, Q2	UCLA, CSE - RBS
61.	KD Proneness Scale and Checklist	UCLA, CSE - RBS
62.	Kuder E	UCLA, CSE - RBS
63.	Kuder General Interest Survey - Grade 6	UCLA Studies

Affective Domain Continued

64.	Kuder Occupational Interest Survey Form DD	UCLA, CSE - RBS
65.	Kuder Preference Record, Form A (Personal)	UCLA, CSE - RBS
66.	Kuder Preference Record, Form C (Vocational)	UCLA, CSE - RBS
67.	The Learning Environment Inventory	Rosenshine
68.	Learning Environment Inventory - Cliqueness, Cohesiveness, Competitiveness, Friction	UCLA, CSE - RBS
69.	Level of Aspiration Test: Total Test	UCLA, CSE - RBS
70.	Life Adjustment Inventory	UCLA, CSE - RBS
71.	MACH (iavellianism) Scales Kiddie Mach	UCLA, CSE - RBS
72.	Manifest Anxiety Scale (revised version)	McNair & Lorr; Taylor
73.	Marriage Role Expectation Inventory, Male and Female Forms, Care of Children	UCLA, CSE - RBS
74.	Martin S-D (Suicide-Depression) Inventory	UCLA, CSE - RBS
75.	Measurement of Problems and Interests of Adolescents	Chabassol & Thomas
76.	Minnesota Multiphasic Personality Inventory, Form R - Depression and Masculinity, Femininity	UCLA, CSE - RBS
77.	Minnesota Personality Profile II	Johnson & Bommarito
78.	Minnesota Vocational Interest Inventory	UCLA, CSE - RBS
79.	Mooney Problem Checklists	Adams & Torgerson
80.	Mooney Problem Checklist, Form H-CSM (Courtship, Sex, and Marriage), HF (Home and Family)	UCLA, CSE - RBS
81.	Mooney Problem Checklist, Forms J, HF, BG, PG	UCLA, CSE - RBS
82.	Mooney Problem Checklist, Forms H (PPR, ASW, CTP, MR), Form J (SC. S)	UCLA, CSE - RBS
83.	Multidimensional Internal-External Scale	UCLA, CSE - RBS
84.	No title given	North Carolina Advancement School
85.	Occupational Interest Inventory	UCLA, CSE - RBS
86.	Parent-Adolescent Communication Inventory Form A (Adolescence)	UCLA, CSE - RBS

Affective Domain Continued

87.	Pennsylvania Questionnaire	UCLA, CSE - RBS
88.	Pennsylvania Questionnaire - Interest in School	UCLA, CSE - RBS
89.	Personal Values Inventory (PVI)	Finger & Scklesser
90.	Personality Development Record	UCLA, CSE - RBS
91.	Personality Inventory: BI-N, B3-1	UCLA, CSE - RBS
92.	Personality Inventory: B4-D, F2-S, B2-S, FI-C	UCLA, CSE - RBS
93.	Picture Interest Inventory	UCLA, CSE - RBS
94.	Pre-Examination Questionnaire	UCLA, CSE - RBS
95.	Preferred Student Characteristics Scale (PSCS)	Nelson
96.	Primary Pupil Reading Attitude Inventory	UCLA, CSE - RBS
97.	The Problem Prediction Test	Gage, Leavitt & Stone Information Exchange
98.	Pupil Reaction Inventory	Medley
99.	The Purdue Master Attitude Scale	UCLA, CSE - RBS
100.	Questionnaire: Attitude Toward Teacher-Issues Reinforcement	UCLA, CSE - RBS
101.	Scales for the Measurement of Attitudes	UCLA, CSE - RBS
102.	School Expectation Interview	UCLA, CSE - RBS
103.	Schwartz Scales	UCLA, CSE - RBS
104.	Self-Analysis Inventory	Buros, 1959
105.	The Self-Concept and Motivation Inventory	Coller
106.	The Self-Concept as a Learner Scale-Elementary (SCALE)	Coller
107.	Self-Concept as a Learner Scale: Motivation, Class Member	UCLA, CSE - RBS
108.	Self-Concept of Ability Scales, Forms A & B	UCLA, CSE - RBS
109.	Self-Concept Scale (Gill)	UCLA, CSE - RBS
110.	Self-Directed Search	UCLA, CSE - RBS
111.	Self-Insight Test, Form A (Acceptance of Others)	UCLA, CSE - RBS
112.	The Self-Others Questionnaire	Shaw & Wright

Affective Domain Continued

113.	Self Perception Inventory: General Adjustment, Supervision	UCLA, CSE - RBS
114.	Self Perception Inventory: Authoritarianism, Anxiety	UCLA, CSE - RBS
115.	Self Perception Inventory: Rigidity-Dogmatism, General Maladjustment	UCLA, CSE - RBS
116.	Self Perception Inventory: Self Actualization, Consistency, Depression, Paranoia, Uncommon Response	UCLA, CSE - RBS
117.	Self-Report Inventory: Authority Scale	UCLA, CSE - RBS
118.	Self-Report Inventory, Form R-3 Children's Scale	UCLA, CSE - RBS
119.	Semantic Differential for Science Students	Walberg & Anderson UCLA Studies
120.	Sixteen Personality Factor Questionnaire Form A	UCLA, CSE - RBS
121.	Sizing Up Your School Subjects	UCLA, CSE - RBS
122.	SMSG - Student Attitude Inventory	Rosenshine
123.	Social Insight Test	UCLA, CSE - RBS
124.	Sociometric Type Peer Acceptance Measure	Smithsonian Science Information Exchange
125.	SCIOS - Southwestern Cooperative Interaction Observation Schedule, Sections I, II, III, VI, VII, VIII	UCLA, CSE - RBS
126.	Stages of Moral Development Scoring System	Lake, Miles & Earle
127.	State-Trait Anxiety Inventory Form X-1 (Anxiety-State) Form X-2 (Anxiety-Trait)	UCLA, CSE - RBS
128.	STS Junior Inventory, Form G	UCLA, CSE - RBS
129.	STS Youth Inventory, Form G	UCLA, CSE - RBS
130.	Student Attitude Scale	UCLA, CSE - RBS
131.	S-D - Suicide-Depression Proneness Checklist	UCLA, CSE - RBS
132.	Survey of Opinions - Attitudes (500-A)	Krumboltz & Farquhar
133.	Survey of Personal Values	UCLA Studies
134.	Survey of Study Habits and Attitudes Form C	UCLA, CSE - RBS
135.	Teacher-Pupil Inventory - Minnesota Teacher Attitude Inventory	Leeds; Leeds & Cook

Affective Domain Continued

136.	Test Anxiety Scale for Children	UCLA, CSE - RBS
137.	The Test of the Teacher's Ability to Judge Interpupil Preferences	Gage, Leavitt & Stone
138.	Test to Measure the Avowal and Projection of Happiness	Goldings
139.	The Thomas Self-Concept Values Test	Buros, 1972
140.	Thurstone Interest Schedule	UCLA, CSE - RBS
141.	Thurstone Temperament Schedule	UCLA, CSE - RBS
142.	The Unforced Teacher Rating Scale	Gage, Leavitt & Stone
143.	Vocational Preference Inventory	UCLA, CSE - RBS
144.	What I Like to Do	UCLA, CSE - RBS
145.	Self-Social Symbols Task	Educational Testing Service
146.	Self-Social Symbols Task Preschool and Adolescent Forms	Institute for Development of Human Resources
147.	Opinion, Attitude, and Interest Survey (OAIS)	Fricke
148.	Activities Index (AI)	Herr
149.	Self-Social Symbols Task, Preschool and Adolsecent Forms (Identification, Social Interests)	Institute for Development of Human Resources
150.	Measure of Variables in a Study of Achievement Motives and the Child's Environment	Institite for Social Research
151.	A 122 Item Instrument Measuring Attitudes, Study Habits, Motivation (as cited by Khan, 1969)	Khan
152.	Self Observation Scales	National Testing Service
153.	Study of High School Students' Attitudes and Aspirations	Spellman
154.	Classroom Climate Questionnaire	Walberg
155.	California Study Methods Survey Attitudes Towards School	UCLA, CSE - RBS
156.	California Study Methods Survey	Carter
157.	Lipsitt Self-Concept Scale for Children	Johnson & Bommarito
158.	No title given	Borgatta
159.	Scales - The Measurement of Group Dimensions	Hemphill & Westie

Affective Domain Continued

160.	Adjective Checklist	Johnson & Bommarito
161.	Adjustment Inventory, Student Form, Home	UCLA, CSE - RBS
162.	Adjustment Inventory, Student Form (Emotionality, Masculinity, Hostility)	UCLA, CSE - RBS
163.	California Test of Personality, Elementary Form AA (Community Relations)	UCLA Studies
164.	Dependence Proneness Scale	Johnson & Bommarito
165.	Elementary Social Causality Test	Johnson & Bommarito
166.	How Well Do You Know Yourself	UCLA, CSE - RBS
167.	Minnesota Counseling Inventory	Berdie & Layton
168.	Minnesota Counseling Inventory Family Relationships	UCLA, CSE - RBS
169.	Minnesota Counseling Inventory Leadership; Conformity	UCLA, CSE - RBS
170.	The Piers-Harris Children's Self-Concept Scale (The Way I Feel About Myself)	Buros, 1972; UCLA, CSE - RBS
171.	Sears Self-Concept Inventory Attractive Appearance	UCLA, CSE - RBS
172.	Sears Self-Concept Inventory Social Relations - Same Sex; Social Virtues	UCLA, CSE - RBS
173.	Sears Self-Concept Inventory	UCLA, CSE - RBS; Johnson & Bommarito
174.	Self-Esteem Inventory	UCLA, CSE - RBS
175.	Self-Esteem Inventory, Form A	UCLA, CSE - RBS
176.	SM (School Morale) Scale	UCLA, CSE - RBS
177.	Survey of Study Habits and Attitudes (SSHA)	Holtzman & Brown, 1968; Khan, 1969; Khan & Roberts 1969; Khan & Roberts, 1971
178.	Tenenbaum Questionnaire: A test to measure a child's attitude toward school, teachers, and classmates	Tenenbaum
179.	Tennessee Self-Concept Scale	UCLA, CSE - RBS; Buros, 1972
180.	Aggression Rating Scale	Walker
181.	Behavior Checklist	Walker

Affective Domain Continued

182.	Bristol Social Adjustment Guides (BSAG)	Walker
183.	Children's Behavior Scale	Walker
184.	Classroom Behavior Inventory	Walker
185.	Emmerich Classroom Observation Rating Scale	Walker
186.	Family Relations Test: An Objective Technique for Exploring Emotional Attitudes in Children (Younger Children Form)	Walker
187.	Fels Child Behavior Scales	Walker
188.	Merrill-Palmer Scales	Walker
189.	Nursery School Adjustment Scale	Walker
190.	Teacher's Rating Scale of Adjustment	Walker
191.	Attitude Toward School, K-12 (Contains Looking Back and School Sentiment Index)	UCLA, CSE - RBS
192.	Self-Concept, K-12	
193.	Mood Adjective Checklist	Lake, Miles & Earle
194.	The Experimental Analysis of Mood	McNair & Lorr
195.	Self-Concept Adjective Checklist	UCLA, CSE - RBS
196.	Self-Perception Inventory (Student Form)	UCLA, CSE - RBS
197,	Self-Perception Inventory Student Form	Soares

OVERALL LISTING OF ALL INSTRUMENTS SURVEYED

COGNITIVE DOMAIN

1.	Short Form Test of Academic Aptitude Level I (Test 3)	UCLA, CSE - RBS
2.	Short Form Test of Academic Aptitude Levels 2, 3, 4, 5 (Test 3)	UCLA, CSE - RBS
3.	American School Intelligence Test Grade 6	UCLA Studies
4.	Aptitude Tests for Occupations Form A (Clerical Routine)	UCLA, CSE - RBS
5.	Aptitude Tests for Occupations Form A (Mechanical Aptitude)	UCLA, CSE - RBS
6.	Art Judgement	UCLA, CSE - RBS
7.	Behavior Cards: A Test-Interview for Delinquent Children Grades 5 & 6	UCLA Studies
8.	Benton Visual Retention Test - Grade 3	UCLA Studies
9.	California Test of Mental Maturity Long Form - Grade 3	UCLA Studies
10.	California Test of Mental Maturity Short Form - Grade 3	UCLA Studies
11.	California Test of Personality Grades 5 & 6	UCLA Studies
12.	The Case of Mickey Murphy: A Case Study Instrument in Evaluation	Buros, 1959
13.	Cognitive Abilities Test Primary Form I (Tests 3, 4)	UCLA, CSE - RBS
14.	Cognitive Abilities Test Primary Form II (Tests 3, 4)	UCLA, CSE - RBS
15.	Comprehensive Tests of Basic Skills	Buros, 1972
16.	Concept Assessment Kit - Conservation, Form A	UCLA, CSE - RBS
17.	Concept Assessment Kit - Conservation, Form C	UCLA, CSE - RBS
18.	Cornell Learning and Study Skills Inventory, Secondary Form	UCLA, CSE - RBS
19.	Design Judgement Test	UCLA, CSE - RBS
20.	Differential Aptitudes Test, Form L	UCLA, CSE - RBS
21.	Educational Development Series Grades 5 & 6	UCLA Studies

Cognitive Domain Continued

22.	Flanagan Aptitude Classification Test (Vocational) Tests 1, 8, 11	UCLA, CSE - RBS
23.	FF (Flexibility) Opinion Survey	UCLA, CSE - RBS
24.	FL (Fluency) Opinion Survey	UCLA, CSE - RBS
25.	Gestalt Transformation, Form CR03A	UCLA, CSE - RBS
26.	Goldschmid and Bentler Concept Assessment Kit, Form A	Rardin & Moan
27.	Henmon-Nelson Tests of Mental Ability Grade 6	UCLA Studies
28.	Hidden Figures, Form NFT04A	UCLA, CSE - RBS
29.	Illinois Test of Psycholinguistic Abilities - Grade 1	UCLA Studies
30.	Illinois Test of Psycholinguistic Abilities - Grade 3	UCLA Studies
31.	Illinois Test of Psycholinguistic Abilities (Auditory-Vocal Association) Grade 3	UCLA Studies
32.	Illinois Test of Psycholinguistic Abilities (Visual Motor Association) Grade 3	UCLA Studies
33.	Illinois Test of Psycholinguistic Abilities - Grade 5	UCLA Studies
34.	Inventory of Children's Interests	UCLA, CSE - RBS
35.	Kit of Reference Tests Cf-1	UCLA, CSE - RBS
36.	Kit of Reference Tests P-2, Le-1, Le-3, Fl-3, Fw-2	UCLA, CSE - RBS
37.	Kit of Reference Tests Re-3	UCLA, CSE - RBS
38.	Kit of Reference Tests S-1	UCLA, CSE - RBS
39.	Kit of Reference Tests Vz-2, Fa-1, Fe-3, Re-2, Le-2, S-2, Re-2, Re-1	UCLA, CSE - RBS
40.	Kuhlman-Anderson Measure of Academic Potential, 7th ed. (Test K6)	UCLA, CSE - RBS
41.	Kuhlman-Anderson Test - Grade 6	UCLA Studies; copy of instrument
42.	Kuhlman-Finch Tests - Test IV (Grades 5 & 6)	UCLA Studies
43.	Largest Class, Form NMC04A	UCLA, CSE - RBS

Cognitive Domain Continued

44.	Let's Look at First Graders (Time Concepts)	UCLA, CSE - RBS
45.	Letter-Concept Grouping, Form NSC02A	UCLA, CSE - RBS
46.	Limited Word Revisions, Form NST05A	UCLA, CSE - RBS
47.	A Look at Literature, Form B	UCLA, CSE - RBS
48.	Lorge-Thorndike Intelligence Tests Grade 1	UCLA Studies
49.	Lorge-Thorndike Intelligence Tests Grade 3, Form 1	UCLA Studies
50.	Lorge-Thorndike Intelligence Tests Grade 3, Form 2	UCLA Studies
51.	Marianne Frostig Developmental Test of Visual Perception - Grade 1	UCLA Studies
52.	Measures of Cognitive Abilities (NS-B Number Series)	UCLA, CSE - RBS
53.	Measures of Curiosity (Student Behavior Profile)	UCLA, CSE - RBS
54.	Measures of Self-Concept - Work Posting	UCLA, CSE - RBS
55.	Mental Ability: Advanced Tests 2, 3, 4	UCLA, CSE - RBS
56.	Mental Ability: Elementary Tests 1, 2, 3, 4	UCLA, CSE - RBS
57.	Mental Ability: Primary Tests 1-5	UCLA, CSE - RBS
58.	Metropolitan Readiness Tests	Asmundson
59.	Metropolitan Readiness Tests - Grade 1	UCLA Studies
60.	Minnesota Counseling Inventory	Buros, 1959
61.	Modified Alpha Examination, Form 9 Tests C, D, E, F	UCLA, CSE - RBS
62.	Multiple Aptitude Tests (7 & 8)	UCLA, CSE - RBS
63.	Multiple Aptitude Tests (9)	UCLA, CSE - RBS
64.	Multiple Grouping, Form DMC02C	UCLA, CSE - RBS
65.	My Teacher Inventory	Gage, Leavitt & Stone
66.	Name Grouping, Form DSC02B	UCLA, CSE - RBS
67.	Naming Meaningful Trends, Form NMU04A	UCLA, CSE - RBS
68.	New Uses, Form NMT05A	UCLA, CSE - RBS
69.	Neuroticism Scale Questionnaire (NSQ) Factors E, An, I	UCLA, CSE - RBS

Cognitive Domain Continued

70.	Neuroticism Scale Questionnaire (NSQ) Factor F (Depressed vs. Cheerful)	UCLA, CSE - RBS
71.	OISE Picture Reasoning Test, Form A (Classification, Similarities)	UCLA, CSE - RBS
72.	Omelet Test, Form CSU02A	UCLA, CSE - RBS
73.	Orleans-Hanna Algebra Prognosis Test	UCLA, CSE - RBS
74.	Orleans-Hanna Geometry Prognosis Test	UCLA, CSE - RBS
75.	OST (Object Sorting Task)	UCLA, CSE - RBS
76.	Otis - Lennon Mental Ability Test - Grade 6	UCLA Studies
77.	Pennsylvania Questionnaire (Creative Potential), 9-18 years; Creative Tendency - Grades 5-8	UCLA, CSE - RBS
78.	Performance Test of Mathematics Inquiry (Executes Plan, Self Evaluation)	UCLA, CSE - RBS
79.	Personal Orientation Inventory (Synergy)	UCLA, CSE - RBS; Buros, 1972
80.	Physics Achievement Test	Walberg & Anderson
81.	Pictorial Test of Intelligence - Grade 1	UCLA Studies
82.	Pictorial Test of Intelligence - Grade 3	UCLA Studies
83.	Pittsburgh Adjustment Survey Scales	Jones & Bommarito
84.	Porteus Maze Tests, Vineland Form	UCLA, CSE - RBS
85.	Preschool Inventory - Grade 1	UCLA Studies
86.	Pretests of Vision, Hearing and Motor Coordination - Grade 3	UCLA Studies
87.	Primary Mental Abilities - Grade 1	UCLA Studies
88.	Primary Mental Abilities (Perceptual Speed) Grade 3	UCLA Studies
89.	Primary Mental Abilities (Spatial Relations) Grade 3	UCLA Studies
90.	Primary Mental Abilities (Reasoning) Grades 5 & 6	UCLA Studies
91.	Public School Primary Intelligence Test - Grade 3	UCLA Studies
92.	Public School Primary Intelligence Test, Absurdities - Grade 3	UCLA Studies

Cognitive Domain Continued

93.	Pupil Activity Inventory	Walberg & Anderson
94.	The Q-Tags Test of Personality	Buros, 1972
95.	Raven Progress Matrices - Grade 1	UCLA Studies
96.	Raven Progressive Matrices - Colored Grade 3	UCLA Studies
97.	Raven Progressive Matrices - Colored Grade 5	UCLA Studies
98.	Reading Backwards, Form CST02A	UCLA, CSE - RBS
99.	Reed Science Activity Inventory	Cooley & Reed
100.	Revised Minnesota Paper Form Board Form AA	UCLA, CSE - RBS
101.	No title given	Schwartz
102.	Science Process Inventory	Walberg & Anderson
103.	Seeing Different Meanings, Form CTM05A	UCLA, CSE - RBS
104.	Simplex Group Intelligence Scale - Test 9C, 7A & B, 1A & B	UCLA, CSE - RBS
105.	SRA - Test of Educational Ability (Grades 6-9); Language 1 (Grades 9-12); Language 11 (Grades 4-6)	UCLA, CSE - RBS
106.	SRA Test of Educational Ability (Reasoning) - Grades 6-9, 9-12	UCLA, CSE - RBS
107.	SRA Mechanical Aptitude, Form AH (Space Relations)	UCLA, CSE - RBS
108.	Standardized Road-Map Test of Direction Sense	UCLA, CSE - RBS
109.	STEA - Short Test of Educational Ability Levels 1-4 (Number Series)	UCLA, CSE - RBS
110.	STEA - Short Test of Educational Ability Level 5 (Letter Series)	UCLA, CSE - RBS
111.	STS High School Placement Test - Quantitative Reasoning	UCLA, CSE - RBS
112.	Study Skills and Critical Thinking Section 6	UCLA, CSE - RBS
113.	Study Skills and Critical Thinking Sections 9-12	UCLA, CSE - RBS
114.	Survey of Study Habits and Attitudes Form C (Delay Avoidance, Work Methods)	UCLA, CSE - RBS
115.	Survey Test of Algebraic Aptitude	UCLA, CSE - RBS

Cognitive Domain Continued

116.	Teacher-Pupil Question Inventory (TPQI)	Dunkin & Biddle
117.	Temporal Ordering, Form NMS04A	UCLA, CSE - RBS
118.	Test of Educational Ability - Reasoning Grades 5 & 6	UCLA Studies
119.	Tests in Fundamental Abilities of Visual Art, Grade 3	UCLA Studies
120.	Tests of General Ability - Reasoning Grade 1	UCLA Studies
121.	Tests of General Ability - Grade 3	UCLA Studies
122.	Tests of General Ability - Reasoning Grades 5 & 6	UCLA Studies
123.	Tests of General Ability - Interamerican Series	UCLA, CSE - RBS
124.	Thurstone Temperament Schedule (Reflective)	UCLA, CSE - RBS
125.	Topic Classification System	Rosenshine
126.	Torrance Tests of Creative Thinking - Grade 1	UCLA Studies
127.	Torrance Tests of Creative Thinking - Grade 3	UCLA Studies
128.	Torrance Tests of Creative Thinking - Total - Grades 5 & 6	UCLA Studies
129.	Verbal Picture Translation, Form CMT06A	UCLA, CSE - RBS
130.	Wechsler Intelligence Scale for Children Grade 1	UCLA Studies
131.	Wechsler Intelligence Scale for Children Grade 3	UCLA Studies
132.	Wechsler Intelligence Scale for Children Coding, Grades 5 & 6	UCLA Studies
133.	Wechsler Memory Scale - Grades 5 & 6	UCLA Studies
134.	Wechsler Preschool and Primary Scale of Intelligence Grade 1	UCLA Studies
135.	WISC and Stanford Binet Tests	Griffith
136.	Word Group Naming, Form NMU02A	UCLA, CSE - RBS
137.	Work Transformation, Form NST02B	UCLA, CSE - RBS
138.	Aptitude Treatment Interaction Study (ATI)	Wallen
139.	California Study Methods Survey (Mechanics of Study)	UCLA Studies
140.	California Test of Personality Grades 1 & 3	UCLA Studies

Cognitive Domain Continued

141.	How Well Do you Know Yourself, Form NE-21 (Novelty-Loving)	UCLA, CSE - RBS
142.	Judgement: Deductive Logic and Assumption Recognition	Not given
143.	Otis Lennon Mental Ability Test: Grade I	UCLA
144.	Research Report of North Carolina Advancement School	Not given

APPENDIX B

A Simulation Study of Four Methods Used to Analyze Change

by P. T. Marston

A Simulation Study of Four Methods Used to Analyze Change

PAUL T. MARSTON

Research and Development Center
for Teacher Education

The University of Texas at Austin

R & D Report No. 5058

This study was supported in part by the National Institute of Education Contract No. NIE-C-74-0088, Grant No. OB-NIE-G-78-0116, Research and Development Center for Teacher Education. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

Abstract

Four methods used to analyze change in the pretest-posttest quasiexperimental design--raw gain analysis of variance, residual gain analysis of variance, analysis of covariance, and true score analysis of covariance--are discussed in terms of their underlying models and assumptions. Both gain methods were shown to be approximations of a covariance model and thus inherently less powerful. Examination of the true score model raised the possibility that it was not a true least squares procedure. A Monte Carlo simulation verified that use of the true score model produced too many Type I errors. When adjusted for Type I error rate, the true score method was less powerful than conventional analysis of covariance.

A Simulation Study of Four Methods Used to Analyze Change

The amount of change a treatment can produce in an outcome measure can vary a great deal. When the effect of the treatment is large relative to the effects of other factors on the outcome, statistical analysis considerations are minimal, and almost any type of approach is sufficient to find an effect. The difficulties in analysis arise when factors outside the researcher's control produce large changes in the outcome. Typically, these outside factors lie in the background of the individuals being studied and can be grouped under the general term of individual differences.

For those studies where the researcher has control over who receives the treatment, the variability associated with individual differences can be neutralized by using the method of random assignment. Random assignment should ensure that the groups of people receiving different treatments are, on the average, pretty much alike as long as they are treated alike in all other respects except for the treatment. How much alike is dependent only on the sample size--the larger the sample, the more alike the groups. Thus, in the random assignment experiment, detecting a treatment effect that is small compared to individual difference effects is simply a matter of using a large enough sample.

Things are not so simple where the researcher does not have control over the assignment to treatment conditions. In this case, it is possible that individual performance on the outcome measure may appear to depend on the treatment just because of the characteristics of the group to which it was administered and not because the treatment had an effect. Even a large sample size is no guarantee that groups will be alike before treatment when the assignment to conditions is not random.

Because so many interesting questions can only be asked in the context of preexisting groups--either because random assignment is unethical (e.g., smoking causes cancer) or too expensive (e.g., family wealth and success in school)--an alternative method was needed to test hypotheses about such questions. If it is possible to get a measure for each individual's effect on the outcome both before (pretest) and after (posttest) the treatment then it should be theoretically possible to adjust for individual differences in the treatment groups by using the pretest measure. Designs that use this approach have been called quasiexperimental because they have some of the elements of a controlled experiment, but do not meet the condition of random assignment to treatments (Campbell & Stanley, 1963). For this type of design to reflect reality accurately, it must be assumed that there are no systematic differences in the factors acting on the groups except the treatment and that any individual difference within the groups have an equal effect on both pretest and posttest measures. In other words, (1) all factors that are different among the individuals receiving each treatment (e.g., age, intelligence, or motivation) should have equivalent effects on the two tests, while (2) factors occurring between the two testing times but unrelated to the treatment should have random effects with respect to the treatment. The question as to whether the treatment makes any difference than becomes one of whether the treatment results in any difference in the relationship between pretest and posttest measures for individuals receiving different treatments. If both assumptions have been met then the variability in the score relationships among individuals should be random except for the treatment.

The next step in this type of analysis is specifying the functional relationship between pretest and posttest. If conditions are similar for both testing times, the function is likely to be simple: individuals will do about the same on both tests. This identity will not be perfect because people do vary in their performance at different times. The measure of a test's reliability can be considered an index of how closely the identity function is realized. Given that the reliability of the measured outcome is high the question about the relationship among different treatment groups is whether the change between pretest and posttest is different for different treatment conditions.

Although a large number of analytic approaches have been used to test for change differences, only a few methods are used to any great extent (cf. Lord, 1963). Four of the most common ones were examined to determine their inferential properties. These four were (1) raw gain analysis of variance, (2) residual gain analysis of variance, (3) analysis of covariance, and (4) true score analysis of covariance. These methods differ from one another in terms of the assumptions they make about the relationship between the two test scores and how this is handled mathematically. The comparisons among the methods were done in two ways. The first type of comparison was an examination of the linear model implied by each analysis and what side constraints were placed on the model's parameters. The second type of comparison was an examination of the results of each analysis when it was used on samples from a population with known characteristics produced by a Monte Carlo type simulation. Taken together these two types of comparisons produced evidence for the strengths and weaknesses of each method.

It should be emphasized that the chief concern was the inferential value of each method. This value was based on the power of each to detect differences among treatment groups when such differences existed in the population. A second related concern was how well each method estimated the relationships in the population. The true score analysis of covariance, for example, is designed to optimize the estimation of the pretest/posttest relationship in the presence of reduced reliability. While the precise estimation of population parameters is a desirable goal, it should not take precedence over power in the choice of an analytic method for a research study.

To compare the linear models underlying each method it is first necessary to write a general model for the pretest/posttest design. In this model, the posttest score is equal to the sum of a large number of separate factors which include the pretest score and the treatment. In terms of the population this model can be written as

$$\nu_{ij} = \mu + \gamma_i + \xi_j + \lambda_{ij} + \dots + \pi_{ijk} + \varepsilon \qquad [1]$$

where ν_{ij} is the posttest score for a person given treatment γ_i with a pretest score ξ_j, λ_{ij} is the interaction between treatment and pretest effects, π_{ijk} represents the kth variable in a series of (unspecified) influences on person j under treatment i, μ is a constant difference between the two testings, and ε is the random error inherent in the testing process. This model can be simplified by assuming that the influence of the extraneous variables (π) is either a minor one or is approximately equal for both pretest and posttest. This assumption is met when random assignment to groups is used, while in pretest/posttest designs it acts as a constant which can be combinue with μ. It is also reasonable to assume that under some conditions the interaction term (λ) is also of minor importance. The model can be further simplified by putting all the variables in standardized form, [x(0, 1], which eliminates the μ term. This new model has the form

$$\nu_{ij} = \beta_1\gamma_i + \beta_2\xi_j + \varepsilon \qquad [2]$$

where βs are weighting coefficients which give the relative contribution of each variable. All of the four methods start with [2] as their formal model. The differences occur in the way the β weights are estimated and in what the ξ and γ represent.

Analysis of Covariance

The analysis of covariance is based on a literal interpretation of the simplified population model [2]. The measured values of the pretest, (x), and posttest, (y), are substituted for the population values ξ and ν respectively and a binary coded vector (g) is substituted for γ. The least squares solution for the weights is then obtained for

$$y_{ij} = b_1 g_i + b_2 x_j + e \quad . \qquad [3]$$

(Since all variables are standardized for simplification, no $b_0\underline{m}$ term is required.) It can be demonstrated that the least squares solution for model [3] gives the best estimation of b_1 and b_2 if the variables are measured without error (Werts & Lynn, 1970). It also gives the best estimations if y is measured with error but not the best estimations if there is error in the x measurement (Graybill, 1961; Cronbach and Furby, 1970). In particular, if there is error in measuring x the value of b_2 will be less than β_2 because the obtained correlation between x and y (r_{xy}) will be less than the population correlation ($\rho_{\xi\nu}$). To test for a treatment effect in covariance, an F-ratio is computed between model [3] and a model that forces the value of b_1 to equal zero.

The assumptions made to reduce the general model [1] to the covariance model [2] may not be valid for a particular data set. To be safe it is usually wise to test model [3] against a more complex one which incorporates some of the interaction or extraneous variable terms before proceeding with the analysis. The homogeneity of slopes test is one way to do this because it incorporates a term based on the interaction between treatment and pretest.

True Score Analysis of Covariance

Because the derivation of the linear model for covariance assumes the predictor variables are measured without error, concern has been voiced as to whether it is adequate when error is present in the predictor (Cronbach & Furby, 1970; Cohen & Cohen, 1975). While errors could occur for any type of predictor most of the attention has been focused on the reliability of pretests used as covariates. As mentioned earlier, when a test has low reliability the correlation between the pretest and posttest is reduced which in turn reduces the estimated value of β_2 in model [2]. This, in turn, effects the estimation of β_1 in that model which could lead to erroneous conclusions about the effect of a treatment.

The scores that a hypothetical test with perfect reliability would produce are termed "true scores." Although true scores cannot be measured it is possible to estimate the correlation between the true scores on two tests by using the raw score correlation and the test-retest reliability ($\underline{R}_{xx}$) (Cronbach & Furby, 1970). The linear model for the true score posttest ($\underline{y}_t$) as predicted by the true score pretest ($\underline{x}_t$) and the treatment ($\underline{g}$) is

$$y_t = b_3 g + b_4 x_t + e \quad . \qquad [4]$$

Only the error in measuring the pretest affects the least squares solution so a simplified model may be used (Cohen & Cohen, 1975)

$$y = b_5 g + b_6 x_t + e \quad . \qquad [5]$$

Neither of these models can be used for a least squares solution as they stand because the individual true score values cannot be measured.

Cronbach and Furby (1970, amended by O'Connor, 1972) give a method to estimate true scores by using a model of the form

$$\widehat{y \cdot xw} = b_7x + b_8y + b_9w + b_{10}z \quad . \qquad [6]$$

In this model $\widehat{y \cdot xw}$ is the true y score after estimated true x and estimated true w have been partialed out. The w variable corresponds to the treatment effect (g) in the previous models while z is a second covariate. Notice that in this model all variables are being used to predict y including itself. The consequences of using a variable to predict itself is discussed later.

A true score adjustment that can be used with standard least squares methods has been proposed (Cohen & Cohen, 1975). It requires the raw score correlation matrix be replaced by one in which an adjusted value is substituted for each correlation involving the unreliable variable. The adjustment consists of dividing each obtained correlation with the unreliable variable by the square root of the reliability, ($\sqrt{R_{xx}}$). The standard deviation of the unreliable variable is also adjusted by multiplying it by $\sqrt{R_{xx}}$. The authors suggest the adjustment needs to be made only to unreliable predictor variables. For the covariance model [3] the adjusted correlations would be

$$r_{x_t y} = \frac{r_{xy}}{\sqrt{R_{xx}}} \qquad [7]$$

and

$$r_{gx_t} = \frac{r_{gx}}{\sqrt{R_{xx}}} \quad . \qquad [8]$$

The adjusted standard deviation for this model would be

$$s_{x_t} = s_x \sqrt{R_{xx}} \qquad [9]$$

The symbolic values of the individual true scores are obtained by using the other variables as predictors and solving model [3] for x

$$x = b_{11}g + b_{12}y + b_{13}e \qquad [10]$$

and model [5] for x_t

$$x_t = b_{14}g + b_{15}y + b_{16}e \quad . \qquad [11]$$

The weights for the errors (b_{13} and b_{16}) have been introduced to complete the solution. The least squares weights for equation [10] are

$$b_{11} = \frac{r_{gx} - r_{xy}r_{gy}}{1 - r_{gy}^2} \quad , \qquad [12]$$

$$b_{12} = \frac{r_{xy} - r_{gx}r_{gy}}{1 - r_{gy}^2} \quad , \qquad [13]$$

and

$$b_{13} = \sqrt{1 - b_{11}^2 - b_{12}^2} \quad . \qquad [14]$$

The least-squares weights for equation [11] are

$$b_{14} = \frac{r_{gx_t} - r_{x_t y}r_{gy}}{1 - r_{gy}^2} = \frac{\frac{1}{\sqrt{R_{xx}}} r_{gx} - \frac{1}{\sqrt{R_{xx}}} r_{xy}r_{gy}}{1 - r_{gy}^2} = \frac{b_{11}}{\sqrt{R_{xx}}} \quad , \qquad [15]$$

$$b_{15} = \frac{r_{x_t y} - r_{gx_t}r_{gy}}{1 - r_{gy}^2} = \frac{\frac{1}{\sqrt{R_{xx}}} r_{xy} - \frac{1}{\sqrt{R_{xx}}} r_{gx}r_{gy}}{1 - r_{gy}^2} = \frac{b_{12}}{\sqrt{R_{xx}}} \quad , \qquad [16]$$

and

$$b_{16} = \sqrt{1 - b_{14}^2 - b_{15}^2} = \sqrt{\frac{R_{xx} - b_{11}^2 - b_{12}^2}{R_{xx}}} \quad . \qquad [17]$$

Model [10] also can be solved for e giving

$$e = \frac{x - b_{11}g - b_{12}y}{b_{13}} \quad . \qquad [18]$$

By replacing the coefficients b_{14}, b_{15} and b_{16} in [11] with the expressions from equations [12], [13], and [18] respectively and making the substitutions

$$p = \frac{1}{\sqrt{R_{xx}}}$$

where $p > 1$ and

$$q = \frac{b_{16}}{b_{13}}$$

where $q < 1$ model [11] becomes

$$x_t = qx + (p-q)b_{11}g + (p-q)b_{12}y \qquad [19]$$

where $(p-q) > 0$.

Equation [19] is basically the same as model [6] for true scores given in Cronbach & Furby (1970). It has a number of interesting properties. If $p - q$ is greater than zero the expression for x_t involves adding information from both the g and y variables to the raw score (x). This causes the regression solution for model [5] to obtain a smaller weight for g than model [3] because some g information has been incorporated into x_t. The weight on x_t will be larger than that on x because of y information in

x_t. These two weight changes have opposite effects on the F-ratio because the reduction in the g weight will make the treatment effect smaller, which reduces the numerator, while the increased y information in x_t will make the total R^2 larger, which reduces the denominator. Which of the two effects will dominate depends on the data. The R^2 size is dependent on the amount of error left in the variables after the true score adjustment is made. It is equal to the complement of the square of the error weight (b_{16}^2). Examination of model [17] shows that b_{16} can become imaginary if

$$b_{11}^2 + b_{12}^2 > R_{xx} \quad . \qquad [20]$$

When the inequality [20] is true then the adjusted correlation matrix is said to be non-Gramian. This means it has no least squares solution and cannot represent the correlation matrix for any set of scores, true or otherwise. The non-Gramian condition can arise when the correlation between the pretest and posttest is close to the square root of the reliability. The existence of this problem indicates the true score adjustment is probably not a least squares procedure and thus it is not producing unbiased estimates of the population values.

Raw Gain Analysis of Variance

The raw gain analysis of variance and the residual gain analysis of variance are the other two methods of controlling for individual differences. The statistical weaknesses of these methods relative to analysis of covariance have been extensively examined by others (Lord, 1963; Werts & Linn, 1970; Huck & McLean, 1975) and will be touched on only briefly. Both methods can be shown to be approximations of the analysis of covariance and, as approximations, can never be any better and, in some circumstances, can be much worse.

The raw gain analysis of variance is based on the assumption that an individual's posttest score is the sum of that individual's pretest score plus a treatment effect. The linear model for raw gain (d) is

$$d = (x-y) = b_{17}g + e \quad . \qquad [21]$$

Moving the x over to the right side of model [21] gives

$$y = b_{17}g + (1)x + e \quad . \qquad [22]$$

This model [22] shows the raw gain analysis is a modification of the covariance model [3] in which the weight on x (b_2) is forced to equal unity. The method will incorrectly estimate the size of the effect ($b_{17} \neq b_1$) to the extent that the value of b_2 from model [3] is not equal to unity. Interestingly enough, using raw gain scores in an analysis of covariance will result in the same conclusions about the effect size as using the posttest scores, provided both analyses use the pretest as a covariate. This results from the fact that in the covariance of gain analysis the y and d are linear combinations of one another. In the raw gain version of covariance the solution will obtain the same weight for g while the weight on x will equal $1-b_2$ (Werts & Linn, 1970).

In practical terms, the raw gain analysis is usually a poor choice because the weight on x will nearly always be less than unity. This happens because of regression toward the mean effects when an unreliable test is administered twice.

The problems with raw gain analysis of variance have been known for some time but the method is still used. The two-trial, repeated measures analysis of variance has sometimes been suggested to correct the problems of a raw gain analysis but, in fact, the two methods are formally identical (Huck & McLean, 1975).

Residual Gain Analysis of Variance

Residual gain analysis of variance represents an attempt to overcome the assumption of constant change for all individuals in raw gain analysis while retaining the computational simplicity of the latter. The residual gain scores are formed by predicting each individual's posttest score (y) with the corresponding pretest (x) and then subtracting it from the actual posttest. This predicted score is calculated using the simple correlation model

$$\hat{y} = b_{18}x + e \quad . \qquad [23]$$

Model [21] is then used with $\hat{y}$ substituted for x in the difference term (i.e., $y-\hat{y}$). An interesting byproduct of this method is that the average gain across all groups must be zero so any group gains are relative. The residual gain analysis of variance will give the same estimate of treatment effect as the covariance model only in the case when there is no correlation between the pretest and the treatment conditions. To the extent r_{gx} is different from zero, the residual gain method will tend to underestimate the weight on g. This results from the fact that the least squares solution for b_2 (see equation [12]) involves three correlations, r_{xy}, r_{gx}, and r_{gy}, while the approximate solution obtained in [23] involves only one, r_{xy} (Werts & Linn, 1970). In many cases the residual gain analysis closely approximates the results of analysis of covariance but if the goal is to produce the best approximation then covariance analysis is a superior tool in the first place. With modern computer programs the computational advantage of the residual gain analysis over analysis of covariance is small.

The Monte Carlo Simulation

It is clear from the examination of the underlying models that one of the analyses of covariance methods should be used in preference to either type of gain analysis whenever possible. The two covariance methods can handle any design the gain methods can and do not require such restrictive assumptions about the population characteristics. The choice between the two covariance methods is not as clear because each one appears to have both advantages and disadvantages depending on the nature of the data being analysed. Because a choice cannot be made on the basis of characteristics of the models, a Monte Carlo type simulation was undertaken to empirically identify any differences between the two models. The simulation concentrated on violations of two assumptions of the analysis of covariance that the true score analysis is designed to overcome--errors of measurement in the covariate and group mean differences on the covariate (Cohen & Cohen, 1975). The other assumptions of analysis of covariance such as homogeneity of group regression and normal distribution of the dependent variable were met in the simulated scores. These scores were then analyzed using the four methods and the distribution of significant _F_-ratios and expected values compared.

A computer program simulated data for a two group study in which a pretest and posttest measure were taken. The population was simulated to have the characteristics implied by model [2]. That is, each person's posttest score (ν_{ij}) was the sum of a treatment effect (γ_i) times a constant (β_1) plus his pretest score (ξ_i) times a constant (β_2) plus a unit normal error (ε_{ij}) times a constant (β_3). The values of β_2 and β_3 were set so that the pretest and posttest correlated .6 with each other in the population. Group assignment was made independently of the value of the pretest and error so that the assumputions of the homogeneity of slopes and variance were met.

Three characteristics of the population were varied in the simulation: (1) the size of the group difference on the pretest, (2) the reliability of the pretest measure, and (3) the size of the group difference on the posttest. The mean difference on the posttest was varied from zero to .6 σ_x by adding or subtracting one-half the population difference from each posttest score depending on the group membership. The reliability of the pretest scores was varied by adding an additional error component after the posttest value was generated. Simulations were done for reliabilities of 1.0, .8, .6, and .5. The simulation method was based on the assumption that reliability (R_{xx}) was equivalent to the R^2 between the true scores and the obtained scores. This means the correlation between true and obtained scores (r_{xx_t}) would equal $\sqrt{R_{xx}}$. In those simulations where a mean difference was introduced in the pretest scores it was done by adding 1.67 times the difference introduced in the posttest scores to the pretest scores. This procedure results in the score distributions for the two groups lying on the same regression line.

The computer program generated the simulated scores by using the IMSL subroutine GGNOR to obtain unit random normal deviates [N(0,1)] which simulated random errors (IMSL, 1975). Each sample used for analysis had 50 sets of pretest and posttest scores divided into two groups of 25. In the score formulas that follow, the subscript *i* refers to the group membership and the subscript *j* refers to the individual subjects within the group. The true pretest scores (*x*") were formed using

$$x''_{ij} = e_{1ij} \qquad [24]$$

where e is a unit random normal deviate [N(0, 1)]. The posttest score (y) was formed using the relationship

$$y_{ij} = b_{18}g_i + r_{xy}\, x''_{ij} + \sqrt{1 - r_{xy}^2}\, e_{2ij} \qquad [25]$$

where r_{xy} is the correlation between pretest and posttest in the population and b_{18} is the size of the group difference on the posttest divided by two. The group membership variable (g) takes on a value of +1 for individuals in the first group and -1 for those in the second. Mean differences were introduced into the pretests using the relationship

$$x'_{ij} = b_{19}g_i + x''_{ij} \qquad [26]$$

where b_{19} is one-half the difference between groups on the pretest. The last step in generating the scores was to introduce the unreliability. Each true pretest value (x') was replaced with an observed value (x) using a third unit random normal deviate to introduce error

$$x_{ij} = \sqrt{R_{xx}}\, x'_{ij} + \sqrt{1 - R_{xx}}\, e_{3ij} \quad . \qquad [27]$$

When R_{xx} is unity, x_{ij} equals x'_{ij} making the true and observed scores the same. Measurement error could be added into the y scores but this would be equivalent to making the error in x larger (Graybill, 1961).

For the combination of group mean differences and pretest reliability, 1,000 samples of the 50 scores were generated and analyzed with the four methods. The combinations of parameters used in these samples are shown in Table 1. From these analyses a frequency distribution was tabulated for

---

See Table 1

Table 1

The number of simulations of 1000 samples produced under each set of population parameters.

Difference		r_{xx_t}	.8		.6		.5
$\bar{x}$	$\bar{y}$	R_{xx}	.95	.8	.89	.6	.5
0σ	0σ		1	3	1	3	2
$.1\sigma$	0σ		-	2	-	2	1
$.2\sigma$	0σ		1	3	1	3	1
$.6\sigma$	0σ		1	1	1	1	-
$.1\sigma$	$.167\sigma$		-	2	-	2	1
$.2\sigma$	$.334\sigma$		-	2	-	2	1
$.6\sigma$	1.002σ		1	1	1	1	-

the *F*-ratios exceeding the four standard significance levels of .01, .05, .10, and .25. Descriptive statistics were computed from the samples for the weights for each type of analysis. The distribution of significant *F*-ratios under the null hypothesis was tested for those conditions where the group means were equal. The power of each test was estimated from the distribution of significant *F*-ratios for those conditions with a group difference on y. Finally, the ability of each test to detect the situation where the group differences on y were the results of "pre-existing" differences was tested in the conditions where the x means were different. If the population parameters are correctly estimated in this latter case the null hypothesis of $b_1 = 0$ should not be rejected.

The *F*-ratios for the raw gain and the residual gain analyses were computed using the one-way analysis of variance algorithim. This was converted to the linear model parameters by setting b_1 to one-half the mean difference on y and setting the value for b_2 at $r_{xy}\sigma_y/\sigma_x$ for the residual gain and unity for raw gain. The weights for the analysis of covariance were obtained by using the solution to the normal equations

$$(X'X)^{-1}X'Y = \beta \qquad [28]$$

where the correlation matrix was used for $X'X$. The true score weights were obtained by using this same algorithim after making the Cohen & Cohen (1975) corrections to the correlations matrix and the standard deviation of x. These corrections are given in equations [7], [8], and [9].

The reliability of a test can be assessed by a number of different methods, which may give different values, so there will always be some uncertainty about the value of correction to use. For this reason, some of the simulation runs used a reliability correction based on one-half the unreliability introduced into the scores to see what the effect of undercorrection would be. For example, if the unreliability introduced in [27] was .8 then the value .95 was used for $\underline{R}_{xx}$ in the correction formulas (i.e., [7], [8], and [9]).

Results

The distribution of F-ratios for the sample sets with equal group means should follow a central F-distribution with 1 and 48 degrees of freedom for the gain methods and 1 and 47 degrees of freedom for the covariance methods. Table 2 shows the number of F-ratios computed by each that exceeded critical values at the four standard levels of significance (i.e., .01, .05, .10, and .25).

See Table 2

When more than one sample set was generated the frequency listed is the mean of the sets. The expected number of F's is obtained by multiplying the p level times the number of sample sets so that at $p < .05$ one would expect 50 significant results. Table 2 ($p < .05$, $\underline{r}_{xx} = .8$, $\underline{R}_{xx} = .8$) lists the obtained number of significant results as 53 for difference scores, 50 for residual gain, 52 for covariance, and 76 for true scores. All of the values except that found for true scores appear to be close to the expected value of 50. To test this, a series of χ^2 goodness of fit tests with four degrees of freedom were performed on the frequencies. These showed that in four out of five parameter combinations the true score analysis showed a significant ($p < .05$) departure from the expected distribution. The other methods analysis gave no χ^2 large enough to reject any parameter combination at the $p < .05$ level. In fact, 13 out of the 15 distributions could not be rejected at $p < .50$. Clearly, the F-ratios

Table 2

Cumulative number of significant
$\underline{F}$-tests when pretest and posttest
means are equal. (H_0 True).

Method	Expected Number	r_{xx_t}	.8		.6		.5
		R_{xx}	.95	.8	.89	.6	.5
Covariance	250		239	259	233	250	240
	100		91	105	88	102	96
	50		44	52	47	53	45
	10		5	9	12	11	10
True Score	250		254	291	268	353	382
	100		100	135	109	182	226
	50		52	76	61	112	152
	10		8	20	18	46	65
Residual Gain	250		238	258	234	250	239
	100		89	105	90	101	97
	50		44	50	47	55	46
	10		5	9	13	10	11
Raw Gain	250		228	259	258	254	245
	100		89	107	91	92	101
	50		43	53	48	48	48
	10		10	12	8	12	11

computed for the true score analysis were not following the central F-distribution. To estimate what the distribution of Type-I errors might be for the true score method, a second degree polynomial with a zero intercept was fitted to the obtained frequencies. An example of a fit for a reliability of .6 is shown in Figure 1.

See Figure 1

The predicted values from these fits given in Table 3 show the effective

See Table 3

α-level was primarily a function of the size of the reliability correction used. They indicated that when the reliability correction was close to unity the distribution of significant F-ratios closely followed the expected distribution but as the reliability correction was moved away from unity the number of F-ratios exceeding each significance level increased above the number expected. Thus, the greater the reliability correction made (i.e., a smaller value of R_{xx}) the greater the chance of committing a Type-I error when the true score method was used.

The next step was to compare power of each analytic method. This was done by comparing the frequency of significant F-ratios for each type of analysis when the population parameters were set to have a difference between the groups on the y values but not on the x values. The true score method showed the most significant results followed by covariance, residual gain, and raw gain, respectively. While these results tend to indicate the true score method was the most powerful, the comparison may have favored it just because the test was operating at an inflated α-level. An approximate comparison with the other three methods was made by plotting the true score

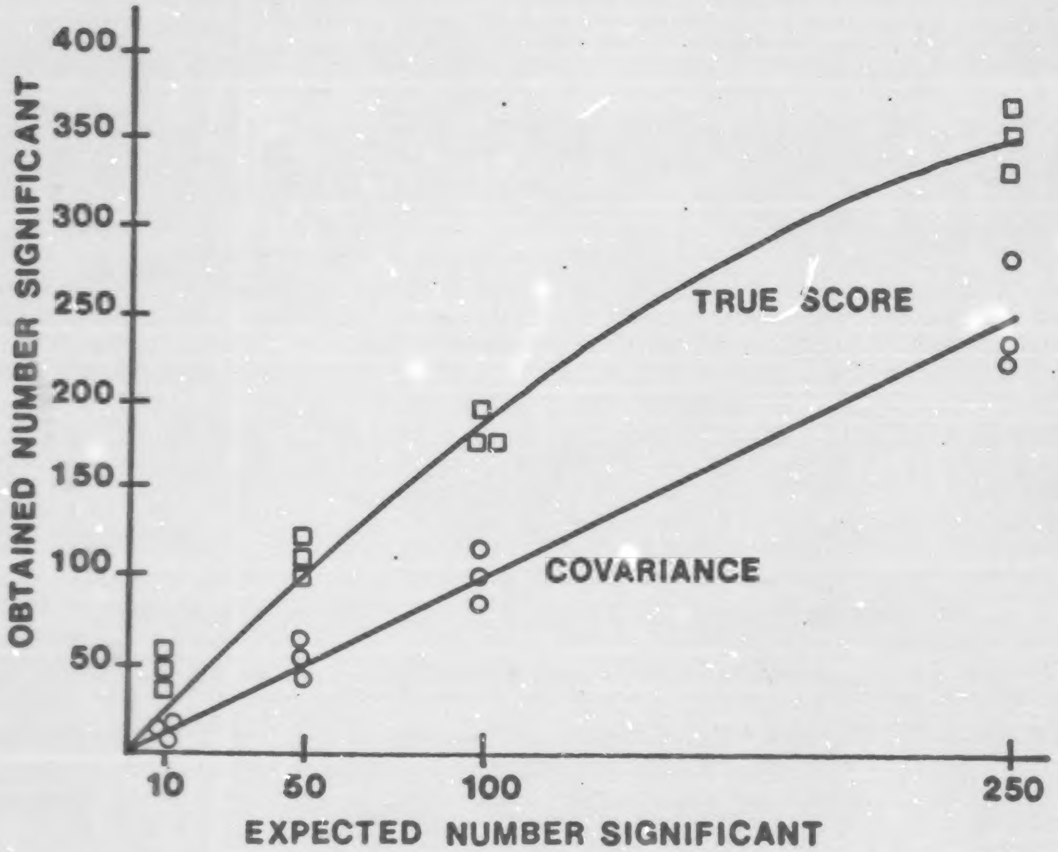


Figure 1. Distribution of significant F-tests for true score analysis and analysis of covariance when the null hypothesis is true.

Table 3

Estimated Type-I error rates for true score analysis of covariance

r_{xx_t}	.8		.6	
Alpha Used / R_{xx}	.95	.8	.89	.6
.01	.014	.015	.015	.022
.05	.058	.073	.073	.104
.10	.110	.138	.138	.191
.25	.275	.290	.290	.352

results as a function of the estimated α-levels given in Table 3. When this was done it turned out the true score method showed less power than a conventional analysis of covariance. Figure 2 shows the relative power of

See Figure 2

the two types of analysis when the reliability was .6 and the difference between the groups was either .1σ or .6σ. This replotting indicated the increased power of the true score method was only an apparent effect. The same increase in power could have been achieved directly by using a higher α-level in a standard analysis of covariance.

Another argument given for using the true score method is that it does a better job of recovering the population parameters (Cronbach & Furby, 1970). To test this possibility, the mean and standard deviation of the obtained regression weights for each of the four types of analysis were computed. These value are shown in Table 4. As expected, the

See Table 4

introduction of error into the $\underline{x}$ values reduced the value of the weight on that variable ($\underline{b}_2$). The true score analysis did get a larger value for $\underline{b}_2$ but the unit vector weight ($\underline{b}_0$) and the effect weight ($\underline{b}_1$) had values almost identical to the analysis of covariance. In fact, introduction of error made very little difference in the estimation of these weights. The two methods did differ in the variability of the estimated weights. In almost every case, the true score method showed larger standard deviations for all three weights than did analysis of covariance. Thus, the true score method did no better than analysis of covariance in estimating value of the critical $\underline{b}_1$ weight and, moreover, the true score weight estimates showed more uncertainty.

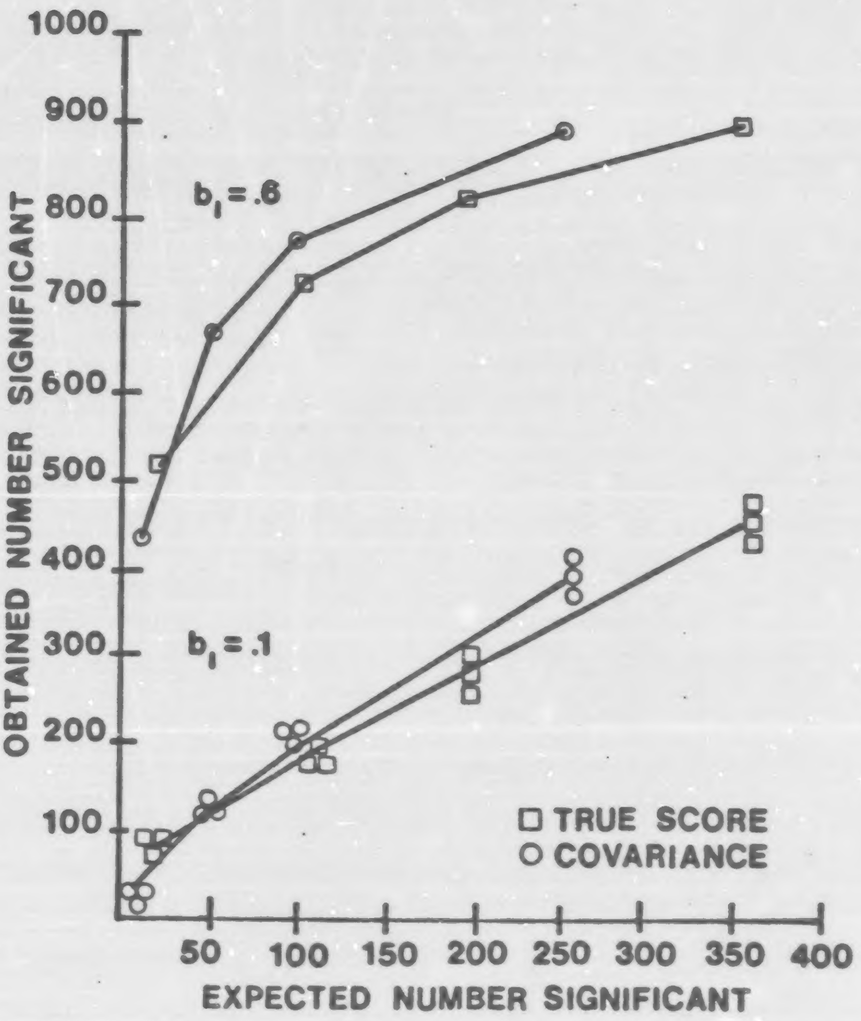


Figure 2. Distribution of significant F-tests for true score analysis (TS) and analysis of covariance (CV) when the null hypothesis is false.

Table 4

Means of sample regression weights with standard deviation of weights shown in parenthesis for the population equation $y = b_0 + b_1g + b_2x$ where $b_0 = 0$, $b_1 = .3$, and $b_2 = .6$.

Weight	r_{xx_t}	.8		.6	
	Method R_{xx}	.95	.8	.89	.6
b_0	Covariance	.001 (.119)	-.005 (.118)	-.001 (.130)	-.002 (.132)
	True Score	.001 (.119)	-.006 (.121)	-.001 (.133)	.001 (.145)
b_1	Covariance	.298 (.122)	.294 (.122)	.311 (.134)	.313 (.130)
	True Score	.298 (.123)	.294 (.125)	.310 (.135)	.313 (.141)
b_2	Covariance	.534 (.130)	.541 (.123)	.465 (.131)	.456 (.133)
	True Score	.595 (.145)	.680 (.154)	.584 (.164)	.772 (.226)

In one case the true score method consistently recovered the population characteristics better than the other three methods. This occurred when the two groups differed on both the dependent variable and the covariate by amounts such that for the population both groups lay on the same regression line. This makes the population value for the group variable weight ($\underline{b}_1$) equal to zero which means the F-ratios should follow the null distribution. In other words, all of the difference in the dependent variable is predictable from difference between the groups on the covariate. When error was introduced in $\underline{x}$, the true score analysis of covariance came closer to following the central F-distribution than did analysis of covariance although both showed more significant results than expected. This "success" of true score method turned out to be very sensitive to the size of the reliability correction, as shown in Table 5. A check on this combination of parameters was made using an analysis of covariance on the scores before the error was introduced and that analysis did show the appropriate null distribution of F-ratios. The results of this last set of simulations confirmed the often given warning that analysis of covariance may not be appropriate for data sets where there are substantial group differences on the covariate and especially inappropriate when there is also error in the covariate values. The best solution to this problem, of course, is to avoid it by using random assignment (Lord, 1963).

See Table 5

Discussion

The problem addressed at the onset was how well the four analytic methods for analysing gain could deal with an outcome measure on which there were large individual differences and assignment to treatments was

Table 5

Cumulative number of significant F-tests when both pretest and posttest means are different but lie on the same regression line.

r_{xx_t}	.8		.6		
Method R_{xx}	.95	.8	.89	.6	Expected
Covariance	270	298	410	409	250
True Score	263	315	346	428	
Covariance	115	145	221	211	100
True Score	114	158	175	266	
Covariance	64	82	143	127	50
True Score	51	104	104	203	
Covariance	14	16	48	44	10
True Score	13	37	31	118	

not random. Of the four methods examined, analysis of covariance proved to be the best choice available from the standpoint both of making the fewest restrictive assumptions about the population characteristics and of having the greatest power to detect treatment differences. Two of the methods examined, raw gain analysis of variance and residual gain analysis of variance, were shown to have less power because of their underlying linear models and assumptions. Both have been shown to be special cases of the analysis of covariance in which restrictions have been placed on the value the covariate weight can take. The Monte Carlo simulation confirmed the weakness of these two methods. The third method investigated, true score analysis of covariance, appeared to have some advantages over standard covariance since it had less restrictive assumptions. On the other hand, it was not clear if the method was statistically valid. Results of the simulation showed the true score method produced too many false rejections of the null hypothesis. When allowances were made for this α-level change, the true score analysis of covariance showed less power than analysis of covariance. The true score method was rejected both for having less power and for being an inappropriate analytic technique.

When the simulation introduced error in measuring the covariate values (the problem true score analysis sought to address) the power of analysis of covariance was reduced but it was still the best method to use. In simulations with error in the covariate, the true score method did a better job of recovering the covariate weight provided the reliability adjustment was optimal. If the reliability was underestimated, the method produced large weights for the covariate which obscured the treatment effect. Any slight advantage this gives the true score analysis was outweighed by the tendency of true score analysis to produce too many significant F-ratios when the null hypothesis was true, which made it impossible to know what α-level the true score analysis was actually using. In place of the fixed decision rule required by Neyman-Pearson hypothesis testing, the true score method was employing a decision rule which was dependent on characteristics of the population being studied. This lack of certainty about the decision rule makes comparison with other studies difficult.

While the results of the simulation cannot give a direct answer to the question of why the true score analysis of covariance gives so many Type-I errors, they do provide some suggestions as to what might be causing these errors. The reliability correction increases the absolute value of each correlation which decreases the uncertainty in predicting the dependent variable (cf. equation [16]) would be changed very little which, in turn, would mean the size of the numerator in the _F_-ratio would be affected less by the adjustment then the size of the denominator. The net effect would be to increase both the size and variability of the obtained _F_-ratios—which was the case obtained in the simulation.

It could be argued that the true score method might operate in a fashion similar to some post hoc tests where the critical value of the _F_-ratios has to be adjusted upward to compensate for changing α-levels. It is not clear how such an adjustment would be made but an approximation is available from the empirically derived α-levels found for the null hypothesis simulations. When the true score distribution of significant _F_-ratios was replotted in terms of effective α-level, the power was less than the power of analysis of covariance. This means the apparent greater power of the true score method can be obtained by the simple process of raising the α-level in an analysis of covariance. This latter approach not only would increase the power of covariance to that of a true score analysis but also would produce a predictable distribution of _F_-ratios.

Even if the problem of Type-I errors could be overcome for the true score method there would remain the problem of how to estimate the size of the reliability correction. Numerous methods are available for measuring reliability (e.g., test-retest, part whole, split-half) as well as for calculating it (e.g., intraclass, intraclass with anchor points, proportion agreement) and these do not give the same value unless the reliability is very close to unity. This is not much help because reliability corrections close to unity reduce the true score method to a standard analysis of covariance. In cases where the reliability is not close to unity the simulation results indicated the true score method was very sensitive to the value used for correction. This sensitivity was particularly pronounced when the correlation between the covariate and the dependent variable in the population was very close to the square root of the reliability. In this case the estimated correlation could sometimes exceed the square root of the reliability which resulted in the corrected correlation being greater than unity. A correlation matrix with values greater than unity is termed non-Gramian. It is a matrix in which the limits on correlation size imposed by the partial correlations have been exceeded. It is possible also for a non-Gramian condition to arise with the true score correction even though none of the off diagonal correlations exceed unity. This could happen, for example, if variables _a_ and _b_ are uncorrelated and variable _c_ is adjusted to correlate .9 with both _a_ and _b_. In geometric terms, this describes the impossible situation of _c_ lying very close to both _a_ and _b_ when they are perpendicular to one another.

While analysis of covariance proved to be the best of the four methods for dealing with the simulated data, this should not be taken as an endorsement of analysis of covariance as the method to deal with change problems. As indicated in the introduction, a number of simplifying assumptions are required before the covariance model is an adequate representation of the population. Three of these are critical and may not be correct in many cases. The first is the assumption that there is no interaction between the pretest-posttest relationship and the assignment to treatment--the homogeneity of slopes assumption. It is possible to imagine treatments which aided individuals low on the pretest and hindered those high on it. The second assumption of analysis of covariance is that there is a simple, straight line relationship between the pretest and the posttest--the linearity assumption. Again, it is possible to imagine treatments which would benefit those individuals who were near the average on the pretest but hinder those near either extreme. The third assumption is that the treatment groups are approximately equal on the covariate measure--that is, the groups are drawn from the same covariate population. All of these problems relate to the general problem of making the statistical model adequate to fit the way the researcher expects the data to fit together. In those situations where the simple covariance model is inadequate, it may be necessary to include either interaction terms to test for homogeneity of slopes or higher order polynomial terms to test for nonlinearity or both. Neither problem is a serious one, and both can be handled by making preliminary tests on the data to test for the adequacy of the covariance model.

It is tempting to treat the problem of unreliability in the same fashion--that is to increase the complexity of the analytic model to deal with it. The argument is then made that even though the particular method for dealing with unreliability examined here did not work it is just a matter of finding the right method to get true scores to work. This writer must disagree. The whole notion of making a true score adjustment is logically unsound. It implies that it is possible to get more information out of the data than was there in the first place. We know that if our tests were better then the pretest and posttest would correlate more highly but our tests are not better and no amount of "playing around" with the correlation matrix is going to make them better.

References

Campbell, D.T., & Stanley, J.C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally, 1963.

Cohen, J., & Cohen, P. Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences. Erlbaum, Hillsdale, New Jersey: 1975.

Cronbach, L.J., & Furby, L. How should we measure "change"--or should we? Psychological Bulletin, 1970, 74, 68-80.

Draper, N.R., & Smith, S. Applied Regression Analysis. Wiley, New York: 1966.

Graybill, F.A. An Introduction to Linear Statistical Models, Vol. 1. McGraw-Hill, New York: 1961.

Huck, S.W., & McLean, R.A. Using a repeated measures ANOVA to analyze data from a pretest-posttest design: A potentially confusing task. Psychological Bulletin, 1975, 82, 511-518.

IMSL Library 3 Reference Manual, Edition 5, (Fortran), CDC 6000/7000, CYBER 70/170 Series. International Mathematical and Statistical Libraries, Inc., Houston, Texas: 1975.

Lord, F.M. Elementary models for measuring change. In Harris, C.W. (Ed.) Problems in Measuring Change, University of Wisconsin Press, Milwaukee, Wisconsin: 1963.

Lumsden, J. Test theory. Annual Review of Psychology, 1976, 27, 251-280.

O'Connor, E.F., Jr. Response to Cronbach and Furby's How we should measure "change"--or should we? Psychological Bulletin, 1972, 78, 159-160.

Werts, C.E., & Linn, R.L. A general linear model for studying growth. Psychological Bulletin, 1970, 73, 17-22.

956

Footnotes

The author wishes to thank Earl Jennings, Don Veldman, Gary Borich, and Rick Clements for their helpful comments on earlier drafts of this article. A preliminary version was presented as a paper at the April 1977 AERA annual meeting in New York City.

Request for reprints should be sent to Paul T. Marston, Research and Development Center for Teacher Education, The University of Texas, Austin, Texas 78712.

Appendix A

Simulation Program Listing

```
      PROGRAM TESTCV(TAPE1,INPUT,OUTPUT)
C THE PROGRAM TESTCV GENERATES SAMPLE SETS FOR A TWO GROUP PRETEST
C TO POSTTEST DESIGN AND THEN ANALYZES THE MONTE CARLO DATA WITH
C FOUR METHODS.  THE METHODS ARE:
C       1  ANALYSIS OF COVARIANCE
C       2  RESIDUALIZED GAIN ANALYSIS OF VARIANCE
C       3  RAW GAIN ANALYSIS OF VARIANCE
C       4  TRUE SCORE ANALYSIS OF COVARIANCE
C
C INPUT:
C      CARD 1:  PROBLEM PARAMETERS
C      CARD 1:  CRITICAL F-TEST VALUES FOR EACH TYPE OF ANALYSIS
      COMMON Y(100),X(100),Z(3,100),BETA(2),SY(2),SX(2),
     1 DD(2),DR(2),EFY(2),EFX(2)
      DIMENSION TBETA(2),NSIG(5,4),SIGL(2,4)
      DIMENSION ABETA(2),ASX(2),QJ(2)
      COMMON/BB/CB(3),FC,CESS,DB(3),FD,DESS,RB(3),FR,RESS,TB(3),FT,
     1  TESS,AB(3),FA,AESS
      DOUBLE PRECISION SEED
      DATA ONE/1.0/
      DATA QJ/1.0,-1.0/
C INPUT VALUES
C  NS    NUMBER OF SAMPLES
C  NG    NUMBER SUBJECTS PER GROUP
C  QXY   CORRELATION BETWEEN X AND Y
C  SEEDY RANDOM GENERATOR SEED 0<SEEDY<1
C  YMD   MEAN DIFFERENCE FOR Y GROUPS
C  XMD   MEAN DIFFERENCE FOR X GROUPS
C  RXX   RELIABILITY FOR X TO Y
C  NOPRT PRINT OPTION FLAG  0=PRINT
      READ , NS,NG,QXY,SEEDY,YMD,XMD,RXX,NOPRT
      IF(RXX.LT.0.25.OR.RXX.GT.ONE) RXX=ONE
      IF(NG.LT.1 .OR. NG.GT.100)STOP1
C READ IN CRITICAL VALUES FOR F-TESTS.  THERE ARE EIGHT VALUES ORDERED
C FIRST IN PAIRS BY DEGREES OF FREEDOM (IE. N-1, N-2) AND THEN IN
C DECENDING ORDER OF CRITICAL VALUES (EG. P=.25, .10, .05, .01).
      READ , SIGL
C CALCULATE CONSTANTS FOR THIS PROBLEM
      FN=N=2*NG
      AXY=SQRT(ONE-QXY*QXY)
      SEED=DBLE(SEEDY)
      M=N*3
        EFY(1)=YMD/2.0
        EFY(2)=COMPL(EFY(1))
        EFX(1)=XMD/2.0
```

```
          EFX(2)=COMPL(EFX(1))
         DFA=FN-3.0
         DFD=FN-2.0
      RN=ONE/FN
      AJUST=SQRT(RXX)
      AXX=ONE-RXX
      QXX=SQRT(ONE-AXX)
      AXX=SQRT(AXX)
      DO 3 I=1,5
         DO 3 J=1,4
    3    NSIG(I,J)=0
C GO THROUGH NUMBER OF SAMPLES REQUESTED
      DO 50 NSAMP=1,NS
C GET RANDOM NORMAL DEVIATES
      CALL GGNOR(SEED,M,Z)
C GENERATE VALUES AND SUM X AND X^2
C ZERO COUNTERS
      SY(1)=SY(2)=SX(1)=SX(2)=SY2=SX2=SXY=0.0
      ASX(1)=ASX(2)=ASX2=ASXY=0.0
      I=0
      DO 1 J=1,2
         EFXJ=EFX(J)
         EFYJ=EFY(J)
         DO 1 K=1,NG
         I=I+1
C        FORM NORMAL DEVIATES X AND Y THAT ARE CORRELATED
         Y(I)=Z(1,I)
C        SET X EQUAL TO Y + ERROR
         X(I)=QXY*Y(I)+AXY*Z(2,I)
C ADD IN EFFECTS
         Y(I)=Y(I)+EFYJ
         X(I)=X(I)+EFXJ
C SET ACTUAL SCORE VALUES
         ASX(J)=ASX(J)+X(I)
         ASX2=ASX2+X(I)*X(I)
         ASXY=ASXY+X(I)*Y(I)
C        SAVE TRUE X VALUE IN POOP
C MAKE SCORES UNRELIABLE
      X(I)=QXX*X(I)+AXX*Z(3,I)
C     SAVE X, Y, AND GROUP INFORMATION
C        SUMMATION OF Y
         SY(J)=SY(J)+Y(I)
         SY2=SY2+Y(I)*Y(I)
C        SUMMATION OF X
         SX(J)=SX(J)+X(I)
         SX2=SX2+X(I)*X(I)
C        SUMMATION OF CROSS PRODUCTS
         SXY=SXY+Y(I)*X(I)
    1    CONTINUE
C CALL SUBROUTINE TO COMPUTE COVARIANCE LEAST-SQUARES SOLUTION
```

```
       CALL COVA(SY,SX,SY2,SX2,SXY,FN,YB,XB,SDY,SDX,RAY,RAX,RXY,
     1 BETA,CB,RSQ,CESS)
      RSQR=RXY*RXY
      FC=(RSQ-RSQR)*DFA/(ONE-RSQ)
C COMPUTE ACTUAL SCORE LEAST-SQUARES SOLUTION
      CALL COVA(SY,ASX,SY2,ASX2,ASXY,FN,AYB,AXB,ASDY,ASDX,ARAY,ARAX,
     1  ARXY,ABETA,AB,ARSQ,AESS)
      ARSQR=ARXY*ARXY
      FA=(ARSQ-ARSQR)*DFA/(ONE-ARSQR)
C CALL SUBROUTINE OF COHEN AND COHEN ~TRUE SCORE~ ADJUSTMENT
         TRXY=RXY/AJUST
         TRAX=RAX/AJUST
         TSDX=SDX*AJUST
         CALL TCOVA(SY,SX,SY2,SX2,SXY,FN,YB,XB,SDY,TSDX,RAY,TRAX,TRXY,
     1   TBETA,TB,TRSQ,TESS)
         TRSQR=TRXY*TRXY
         FT=(TRSQ-TRSQR)*DFA/(ONE-TRSQ)
C DETERMINE COEFFICIENTS TO PREDICT RESIDUALIZED SCORES
         BX=RXY*SDY/SDX
         BO=YB-BX*XB
C GET RESIDUAL GAIN AND RAW GAIN SCORES AND SUMMATIONS
      DSR=DSD=DR(1)=DR(2)=DD(1)=DD(2)=0.0
C SUM RESIDUAL GAINS AND DIFFERENCES
      I=0
      DO 2 J=1,2
         DO 2 K=1,NG
         I=I+1
C        SUM RAW GAIN SCORES
         DIF=Y(I)-X(I)
         DD(J)=DD(J)+DIF
         DSD=DSD+DIF*DIF
C        SUM RESIDUAL GAIN SCORES
         RG=Y(I)-BO-BX*X(I)
         DR(J)=DR(J)+RG
         DSR=DSR+RG*RG
    2    CONTINUE
C STATISTICS FOR RESIDUAL AND RAW DIFFERENCES
C CALCULATED DIFFERENCE SCORE PARAMETERS
      DB(3)=ONE
      A=DD(1)+DD(2)
      DB(1)=B=A*RN
      CSSD=DSD-A*B
      C=DD(1)-DD(2)
      DB(2)=D=C*RN
      RSQD=C*D/CSSD
      RSQD1=ONE-RSQD
      FD=RSQD*DFD/RSQD1
      DESS=RSQD1*CSSD
C CALCULATE RESIDUAL GAIN SCORE PARAMETERS
      RB(3)=BX
```

960

```
       A=DR(1)+DR(2)
      B=A*RN
      RB(1)=B+BO
      CSSR=DSR-A*B
      C=DR(1)-DR(2)
      RB(2)=D=C*RN
      RSQRG=C*D/CSSR
      RSQR1=ONE-RSQRG
      FR=RSQRG*DFD/RSQR1
      RESS=RSQR1*CSSR
C WRITE OUT BINARY VALUES FOR SUBSEQUENT SUMMARY STATISTICAL ANALYSIS
      CALL IOP(2HWB,1,CB,25)
C PRINT OUT NEW LIST OF STUFF
      IF(NOPRT.GT.0)GO TO 10
      IF(MOD(NSAMP-1,10).EQ.0) PRINT 111
  111 FORMAT(*1*,8X,*B(0)*,6X,*B(1)*,6X,*B(2)*,4X,*F-TEST  ERR SS*)
      PRINT 115, (CB(I),I=1,25)
  115 FORMAT(*OCV *,4F10.4,F10.5/* DS *,4F10.4,F10.5/
     1  * RG *,4F10.4,F10.5/* TS *,4F10.4,F10.5/* AS *,4F10.4,F10.5)
C WRITE OUT NEW LIST OF STUFF ON TAPE
   10 CONTINUE
C COUNT NUMBER OF SIGNIFICANT F-TESTS
      DO 4 I=1,4
      IF(FC.GE.SIGL(1,I)) NSIG(1,I)=NSIG(1,I)+1
      IF(FR.GE.SIGL(2,I)) NSIG(2,I)=NSIG(2,I)+1
      IF(FD.GE.SIGL(2,I)) NSIG(3,I)=NSIG(3,I)+1
      IF(FT.GE.SIGL(1,I)) NSIG(4,I)=NSIG(4,I)+1
      IF(FA.GE.SIGL(1,I)) NSIG(5,I)=NSIG(5,I)+1
    4 CONTINUE
   50 CONTINUE
C WRITE OUT PROBLEM PARAMETERS
      PRINT 106,NS,NG,QXY,SEEDY,YMD,XMD,RXX
  106 FORMAT(*1MONTE-CARLO TEST OF TWO GROUP COVARIANCE PROBLEM*/
     1 *-*,I20,* SAMPLES GENERATED*/1X,I20,* SUBJECTS PER GROUP*/
     2 1X,F20.10,* CORRELATION BETWEEN X AND Y*/
     3 1X,F20.10,* RANDOM GENERATOR SEED VALUE*/
     4 1X,F20.10,* Y MEAN DIFFERENCE*/1X,F20.10,* X MEAN DIFFERENCE*/
     5 1X,F20.10,* RELIABILITY OF X AND Y MEASURES*)
      PRINT 113,DFA,DFD,SIGL
  113 FORMAT(*-SIGNIFICANCE LEVEL CUTOFFS USED*/*0*,5X,2(3X,*DF=*,F4.0)/
     1 *0    .25*,2F10.4/4X,*.10*,2F10.4/4X,*.05*,2F10.4/
     2 4X,*.01*,2F10.4/)
C WRITE OUT NUMBER OF SIGNIFICANT F-TESTS
      PRINT 114, NSIG
  114 FORMAT(*-NUMBER OF SIGNIFICANT F-TESTS*/
     1*0*,13X,*COVA*,4X,*R GAIN*,3X,*D SCORE*,3X,*T SCORE*,3X,*A SCORE*/
     2* P(F=0)*/4X,*.25*,5I10/4X,*.10*,5I10/4X,*.05*,5I10/4X,*.01*,5I10)
      CALL IOP(2HWF,1)
      STOP
      END
      SUBROUTINE COVA(SY,SX,SY2,SX2,SXY,GN,YB,XB,TDY,SDX,SAY,RAX,TXY,
     1 BETA,B,RSQ,ESS)
C CALCULATES LEAST SQUARES SOLUTION FOR TWO GROUP COVARIANCE
C PROBLEM WITH EQUAL GROUP SIZES
C PARAMETERS
C      SY(2)  SUM Y (INPUT)
C      SX(2)  SUM X (INPUT)
C        SY2  SUM Y**2 (INPUT)
C        SX2  SUM X**2 (INPUT)
C        SXY  SUM X*Y (INPUT)
C         GN  NUMBER OF OBSERVATIONS (RETURNED)
C         YB  MEAN OF Y (RETURNED)
C         XB  MEAN OF X (RETURNED)
C        TDY  STANDARD DEVIATION OF Y (RETURNED)
C        SDX  STANDARD DEVIATION OF X (RETURNED)
C        SAY  CORRELATION A WITH Y (RETURNED)
C        RAX  CORRELATION A WITH X (RETURNED)
C        TXY  CORRELATION X WITH Y (RETURNED)
C    BETA(2)  VECTOR OF BETA WEIGHTS (RETURNED)
C       B(3)  VECTOR OF RAW WEIGHTS (RETURNED)
C        RSQ  R-SQUARED FOR FULL MODEL (RETURNED)
C        ESS  ERROR SUM OF SQUARES FOR FULL MODEL  (RETURNED)
      DIMENSION BETA(2),B(3),SY(2),SX(2)
      DATA ONE/1.0/
C
C GET MEANS AND STANDARD DEVIATIONS
      FN=GN
      RN=ONE/FN
      YB=(SY(1)+SY(2))*RN
      SYS=SY2-FN*YB*YB
      SDY=SQRT(SYS*RN)
      XB=(SX(1)+SX(2))*RN
      SXS=SX2-FN*XB*XB
      SDX=SQRT(SXS*RN)
C GET CORRELATIONS
      RXY=(SXY-FN*YB*XB)/(FN*SDY*SDX)
      RAY=(SY(1)-SY(2))/(FN*SDY)
      RAX=(SX(1)-SX(2))/(FN*SDX)
C CALCULATE BETA WEIGHTS AND B WEIGHTS
    1 RAXM=ONE-RAX*RAX
      BETA(1)=(RAY-RAX*RXY)/RAXM
      B(2)=BETA(1)*SDY
      BETA(2)=(RXY-RAY*RAX)/RAXM
      B(3)=BETA(2)*SDY/SDX
      B(1)=YB-B(3)*XB
C CALCULATE R SQUARED AND ERROR SUM OF SQUARES
      RSQ=BETA(1)*RAY+BETA(2)*RXY
      ESS=(ONE-RSQ)*SYS
C TRANSFER VALUES BACK TO PARAMETERS
      TDY=SDY
```

```
       SAY=RAY
      TXY=RXY
      RETURN
C ENTRY FOR TRUE SCORE LEAST SQUARES CALCULATION
C (IE. CORRELATIONS, MEANS, AND STANDARD DEVIATIONS ARE ALREADY DONE)
      ENTRY TCOVA
      SDY=TDY
      RAY=SAY
      RXY=TXY
      GO TO 1
      END
```

Appendix B1

Mean values for sample regression weights

		b_0			b_1			b_2		
r_{xx_t}	k_{xx}	AS	CV	TS	AS	CV	TS	AS	CV	TS
					$Y = 0 + .3a + .6x$					
.8	.9	-.001	.001	.001	.302	.298	.298	.601	.534	.595
.8	.8	-.005	-.005	-.006	.294	.294	.294	.604	.541	.680
.6	.8	-.001	-.001	-.001	.310	.311	.310	.599	.465	.584
.6	.6	.000	-.002	.001	.310	.313	.313	.595	.456	.772
					$Y = 0 + .1a + .6x$					
.8	.9	.000	.001	.001	.097	.096	.096	.600	.538	.599
.8	.8	.003	.001	.001	.098	.099	.100	.600	.537	.675
.6	.8	.009	.007	.007	.102	.104	.104	.595	.462	.581
.6	.6	.007	.006	.007	.099	.098	.099	.593	.454	.768
					$Y = 0 + .05a + .6x$					
.8	.8	.007	.007	.007	.042	.039	.039	.604	.541	.681
.6	.6	.000	.003	.003	.054	.050	.052	.603	.468	.792

Appendix B2

Standard deviation values for sample regression weights

		b_0			b_1			b_2		
r_{xx_t}	R_{xx}	AS	CV	TS	AS	CV	TS	AS	CV	TS
					Y = 0 + .3a + .6x					
.8	.9	.112	.119	.119	.118	.122	.123	.120	.130	.145
.8	.8	.111	.118	.121	.115	.122	.125	.114	.123	.154
.6	.8	.111	.130	.133	.118	.134	.135	.117	.131	.164
.6	.6	.117	.132	.145	.116	.130	.141	.119	.133	.226
					Y = 0 + .1a + .6x					
.8	.9	.114	.120	.121	.111	.119	.120	.114	.120	.133
.8	.8	.112	.118	.120	.116	.122	.126	.116	.125	.156
.6	.8	.111	.124	.126	.114	.127	.129	.119	.131	.165
.6	.6	.110	.123	.129	.112	.125	.136	.116	.129	.219
					Y = 0 + .05a + .6x					
.8	.8	.115	.120	.122	.112	.118	.121	.117	.125	.158
.6	.6	.113	.124	.136	.115	.127	.139	.118	.129	.220

APPENDIX C

REFERENCES

PUBLICATIONS FROM THE TEACHING-LEARNING INTERACTION STUDY

Blattstein, A., Blattstein, D., and Peck, R. F. The Relationship of Self-Esteem and Coping to Achievement Change. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Psychological Association, Toronto, August 1978. (R&D Report No. 2416).

Blattstein, A, and Peck, R. F. Sex and Ethnicity Affect School Outcomes - Separately. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Education Research Association in San Francisco, 1979. (R&D Report No. 2420).

Blattstein, A, and Peck, R. F. Teachers Do Affect Student Self-Esteem - But So Do the Students. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2422).

Blattstein, D., Peck, R. F. and Blattstein, A. Consistency in Self, Peer, and Teacher Ratings of Student Coping Skills. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2419).

Breeding, J., Peck, R. F., Hughes, R. and Payne, G. Cross-Cultural Sex Differences: Implications for Education. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2434).

Clements, R., Peck, R. F. and Green, J. "The Rich Get Richer"...In School, Too. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Education Research Association in Toronto, 1978. (R&D Report No. 2411).

Fox, R. and Peck, R. F. Personal Characteristics of Teachers that Affect Student Learning. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Education Research Association, Toronto, 1978. (R&D Report No. 2413).

Fox, R., Peck, R. F., and Blattstein, D. Effects of Peer-Rated Coping and Teacher Structure on Achievement. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Psychological Association, Toronto, 1978. (R&D Report No. 2417).

Fox, R., Peck, R. F., and Blattstein, D. Teacher Characteristics That Influence Student Evaluations. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2426).

Fox, R., Peck, R. F., and Blattstein, A. Tracing Teacher Effects Through Student Behavior to Learning Outcomes. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Psychological Association, Toronto, 1978. (R&D Report No. 2415).

Hughes, R., Breeding, J., Peck, R. F. and Payne, G. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Educational Research Association in Boston, 1980. (R&D Report No. 2432).

Hughes, R., Payne, Glen, Peck, R. F., Breeding, J. Coping Behavior Patterns of College Women. APA Montreal, Canada, 1980. (R&D Report No. 2438).

Marston, P. T. A Simulation Study of Four Methods Used to Analyze Change. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. (R&D Report No. 5058).

Marston, P. T. and Borich, G. Analysis of Covariance: Is it the Appropriate Model to Study Change? Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. Paper presented at the annual meeting of the American Educational Research Association in New York, 1977. (R&D Report No. 5044).

Morris, E. and Goodwin, K. Manual for Administering Student Evaluation of Teacher Instrument II. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. (R&D Report No. 2373).

Payne, G. and Peck, R. F. Coping Strategies, Career Aspirations, and Career Values in the Career Decision-Making Process. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Psychological Association in New York, 1979. (R&D Report No. 2424).

Payne, G., Peck, R. F., Breeding, J. and Hughes, Jr., R. The Relationship of Coping to Adaptive Behavior: Implications for Education. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1980. Paper presented at the annual meeting of the American Psychological Association in Montreal, 1980. (R&D Report No. 2436).

Payne, G., Peck, R. F., Hughes, R. and Breeding, J. Cross-Cultural Study of Adaptive Behavior in the Classroom. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1980. Paper presented at the annual meeting of the American Educational Research Association in Boston, 1980. (R&D Report No. 2435).

Peck, R. F. A Comparison of the Value Systems of Mexican and American Youth. *Interamerican Journal of Psychology*, 1967, *I*(1), 41-50. (R&D Report No. 2356).

Peck, R. F. Coping Strategies and Career Motives that Affect Achievement. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Psychological Association in New York, 1979. (R&D Report No. 2431).

Peck, R. F. Distinctive National Patterns of Career Motivation. *International Journal of Psychology*, 1975, *10*(2), 125-134. (R&D Center Report No. 2378).

Peck, R. F. Measuring Self Concept. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2387).

Peck, R. F. Needed R and D in Teaching. *Journal of Teacher Education*, 1976, *27*(1), 18-21.

Peck, R. F. Problems in Measuring Intra- and Inter- Individual Differences in Concept Development Within Various Cultural Contexts. In Lehr, U. M. and Weinert, F. E. (Eds.), *Entwicklung und Personlichkeit*. Stuttgart: W. Kohlhammer, 1975. (R&D Report No. 2357).

Peck, R. F. Student Biographical Form. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2388).

Peck, R. F. Student/Teacher Interaction and Education Outcomes. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1976. (R&D Report No. 2345).

Peck, R. F. Teacher Biographical Form. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2396).

Peck, R. F. Theories of Coping: Retrospect and Contemporary Trends. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1980. Paper presented at the annual meeting of American Psychological Association, Montreal, 1980. (R&D Report No. 2437).

Peck, R. F., Blattstein, A. and Blattstein, D. Teacher and Student Influences on Student Attitude Toward School. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1979. (R&D Report No. 2421).

Peck, R. F., Blattstein, D., Blattstein, A. and Fox, R. Comparison of Self, Peer, and Teacher Ratings of Student Coping as Predictors of Achievement, Self-Esteem, and Attitudes. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2423).

Peck, R. F., Blattstein, A. and Fox, R. Student Evaluation of Teaching: A Multivariate Validation Study. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Psychological Association, Toronto, 1978. (R&D Report No. 2418).

Peck, R. F., Clements, R. O. and Weber, D. A. Is There Ethnic Bias in Peer Appraisals in Tri-Ethnic Classes? Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. Paper presented at the annual meeting of the American Educational Research Association in New York, 1977. (R&D Report No. 2376).

Peck, R. F. and Diaz-Guerrero, R. Two Core-Culture Patterns and the Diffusion of Values Across Their Border. *International Journal of Psychology*, 1967, *2*(4), 275-282. (R&D Report No. 2355).

Peck, R. F., et al. Concerns Questionnaire. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2391).

Peck, R. F., et al. Coping Behavior and Achievement: An International Study. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. (R&D Report No. 2430).

Peck, R. F., et al. *DOES Handbook (Decision Oriented Evaluation System for Community Development*. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1973. (R&D Report No. 2347).

Peck, R. F., et al. Measuring Achievement at the Sixth Grade Level. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2382).

Peck, R. F., et al. Observation and Interview Systems. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2381).

Peck, R. F., et al. School Sentiment Index. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2384).

Peck, R. F., et al. Student Description. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2392).

Peck, R. F., et al. School Preference Questionnaire and Class Checklist. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2395).

Peck, R. F., et al. Teacher Reaction Form. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2393).

Peck, R. F., et al. Teaching-Learning Interaction Study Progress Report, Condensed Version. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. (R&D Report No. 2410).

Peck, R. F., Fox, R. B. and Marston, P. T. Teacher Effects on Student Achievement and Self-Esteem. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. Paper presented at the annual meeting of the American Educational Research Association in New York, 1977. (R&D Report No. 2377).

Peck, R. F. and Galliani, C. Intelligence, Ethnicity and the Social Roles in Adolescent Society. *Sociometry*, 1962, *25*(1). (R&D Report No. 2348).

Peck, R. F. and Hughes, R. Social Adjustment and Achievement: A Cross-National Survey. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Psychological Association in New York, 1979. (R&D Report No. 2425).

Peck, R. F., Hughes, R., Breeding, J. and Payne, G. Coping Behavior and Achievement: Validating A Conceptual System. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1979. Paper presented at the annual meeting of the American Educational Research Association in Boston, 1980. (R&D Report No. 2433).

Peck, R. F., Hughes, R. and Froming, W. Coping Styles that Predict Achievement in Germany, Japan, and America. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Psychological Association, Toronto, 1978. (R&D Report No. 2414).

Peck, R. F., Kajita, E. and Haak, R. A. Behavior Rating Scale. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2385).

Peck, R. F., Manning, B. A. and Buntain, D. M. An Evaluation of Instruments Measuring Cognitive, Affective and Coping Skills of School Children. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1976. (R&D Report No. 2372).

Peck, R. F., Manning, B. A. and Buntain, D. M. The Impack of Teacher and Student Characteristics on Student Self-Concept, Attitudes Toward School, Achievement, and Coping Sills: A Review of Research. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1977. (R&D Report No. 2380).

Peck, R. F., Marston, P. T., Olsson, N. G., Clements, R. O., Fox, R. B., Manning, B. A. and Buntain, D. M. Studying the Effects of Different Kinds of Teaching on Different Students. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1976. (R&D Report No. 2346).

Peck, R. F. and McGuire, C. Measuring Changes in Mental Health with the Sentence Completion Technique. Psychological Reports, 1959, 5. (R&D Report No. 2358).

Peck, R. F. and Michelis, Elaine. Student Sentence Completion. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2386).

Peck, R. F., Olsson, G. and Green, J. The Consistency of Individual Teaching Behavior. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1978. Paper presented at the annual meeting of the American Educational Research Association, Toronto, 1978. (R&D Report No. 2412).

Peck, R. F., Olsson, N. G. and Marston, P. T. A Multivariate Interaction Model for Assessing Determinants of Learning. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1976. Paper presented at the annual meeting of the American Psychological Association in Washington, D.C., 1976. (R&D Report No. 2374).

Peck, R. F., Payne, G. C. and Cisneros-Soli, M. G. A Longitudinal Study of Coping Skills, Ages 14-29. Austin, Texas: Personality Research Center, The University of Texas at Austin, 1982.

Peck, R. F., Tucker, J. A. and Haak, R. A. In-Service Consultation: A Way of Personalizing Instructions to Student Needs. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1973. Paper presented at The Ohio State University, 1973. (R&D Report No. 2349).

Peck, R. F. and Veldman, D. J. Effects of Teacher Characteristics on Cognitive and Affective Gains of Pupils. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin, 1973. (R&D Report No. 2350).

Veldman, D. J. Dimensions of Student-Teacher Behavior from the Pupils' Viewpoint. Austin, Texas: Personality Research Center, The University of Texas at Austin, 1963. (R&D Report No. 2320).

Veldman, D. J. and Parker, G. V. Adjective Self-Description. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2390).

Veldman, D. J. and Peck, R. F. The Influence of Teacher and Pupil Sex on Pupil Evaluations of Student Teachers. Journal of Teacher Education, 1964, 15(4), 393-396. (R&D Report No. 2241).

Veldman, D. J. and Peck, R. F. Student Evaluation of Teaching. Austin, Texas: The Research and Development Center for Teacher Education, The University of Texas at Austin. (R&D Report No. 2383).

REFERENCES

Adler, Alfred. Social Interest: A Challenge to Mankind. New York: G. P. Putnam & Sons, 1974.

Basic Reading Tests for Galaxies Boston: Houghton Mifflin Company, 1974.

Basic Reading Tests for Images. Boston: Houghton Mifflin Company, 1974.

Bennett, N., et al. Teaching Styles and Pupil Progress. Cambridge, Massachusetts: Harvard University Press, 1976.

Berliner, D. C. The Generalizability of Aptitude-Treatment Interactions Across Subject Matter. Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois, April 1972.

Berliner, D. C. Impediments to the Study of Teacher Effectiveness. Based on paper presented at the March 1975 meetings of the National Association for Research in Science Teaching, Los Angeles.

Berliner, D. C. and Cahen, L. S. Trait-treatment Interaction and Learning. In F. N. Kerlinger (Ed.), Review of Research in Education, Vol. 1. Itascoe, Illinois: Peacock, 1973, pp. 58-94.

Blitz, A. N., and Smith, T. Personality Characteristics and Performance on Computer Assisted Instruction and Programmed Text. Paper presented at the American Educational Research Association Meeting, New Orleans, Louisiana, February 1973. (ERIC ED 074 750).

Bloom, Benjamin S. Stability and Change in Human Characteristics. New York: John Wiley, 1964.

Bloom, Benjamin S. Learning for Mastery. Evaluation Comment, 1968, 1(2).

Bloom, Benjamin S. (ed). Taxonomy of Educational Objectives - The Classification of Educational Goals Handbook I: Cognitive Domain. New York: David McKay Co., Inc., 1974.

Bloom, Benjamin S. Human Characteristics and School Learning. New York: McGraw Hill, 1976.

Bracht, G. H. Experimental Factors Related to Aptitude-Treatment Interactions. Review of Educational Research, 1970, 40, 627-646.

Britt, D. H. An Improved Method for Instruction Development: Learner Types. Audiovisual Instruction, 1971, 16(4), 14-15.

Brophy, J. E. Interactions Between Learner Characteristics and Optimal Instruction. An expansion of "The Contributions of Social Psychology to Education." Symposium presented at meeting of the American Psychological Association, Chicago, Illinois, 1975.

Brophy, J. E. and Good, T. L. *Teacher-Student Relationships: Causes and Consequences*. New York: Holt, Rinehart & Winston, 1974.

Bureau of the Census. 1976 Census of Travis County, Texas: April 20, 1976. (Current Population Reports: Special Censuses, Series P-28, No. 1551). Washington, D.C.: U.S. Department of Commerce, 1977.

CTBS/McGraw Hill. *Technical Bulletin No. 1, Comprehensive Tests of Basic Skills*. Monterey, California: Author, 1974.

Cohen, J., and Cohen, P. Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences. Erlbaum, Hillsdale, New Jersey: 1975.

Comptroller-General of the United States. Assessment of Reading Activities funded under the Federal program of and for educationally deprived children. Report to the Congress of the United States by the General Accounting Office. Washington, D.C.: U.S. Government Printing Office, 1975.

Cox, S. H. Family Background Effects on Personality Development and Social Acceptance. Unpublished doctoral dissertation. Texas Christian University, 1966. Summarized in: Peer Acceptance-Reflection and Personality Development. U.S. Department of Health, Education and Welfare.

Cronbach, L. J. The Two Disciplines of Scientific Psychology, *American Psychologist*, November 1957, *12*(11), 671-684.

Cronbach, L. J. Beyond the Two Disciplines of Scientific Psychology. *American Psychologist*, February 1975, *30*(2), 116-127.

Cronbach, L. J. Educational Effects at the Individual and Group Levels: The Crucial Importance of Hierarchial Interpretation. Final report to the Spencer Foundation. Stanford University (manuscript in preparation), 1976.

Cronbach, L. J., Deken, J. E., and Webb, N. *Research on Classrooms and Schools: Formulation of Questions, Design and Analysis.* (Occasional Papers). Stanford, California: Stanford Evaluation Consortium, School of Education, Stanford University, July 1976.

Cronbach, L. J. and Furby, L. How Should We Measure "Change" -- Or Should We? *Psychological Bulletin*, 1970, 74, 68-80.

Cronbach, L. J., and Snow, R. E. Final Report: Individual Differences in Learning Ability as a Function of Instructional Variables, Final Report. Palo Alto, California: Stanford University, 1969.

Cronbach, L. J. and Webb, N. Between-Class and Within-Class Effects in a Reported Aptitude x Treatment Interaction: Reanalysis of a study by G. L. Anderson. Journal of Educational Psychology, 1975, 67(6), 717-724.

Davis, J. G., Jr. An Investigation of the Interaction of Certain Instructional Strategies with the Structure of Basic Mental Abilities in the Learning of Some Mathematical Operations. (Doctoral Dissertation, Florida State University) Ann Arbor, Michigan: University Microfilms, No. 68-347, 1976. (ERIC ED 055 767).

Davis, W. Q. A Study of Test Score Comparability Among Five Widely Used Reading Survey Tests. Unpublished doctoral dissertation, Southern Illinois University, 1968.

Dowaliby, F. J., and Schumer, H. Teacher-centered versus Student-centered Mode of College Classroom Instruction as Related to Manifest Anxiety. Journal of Educational Psychology, 1973, 64(2), 125-132.

Durost, W. N., Bixler, H. H., Wrightstone, J. W., Prescott, G. A., and Balow, I. H. Manual for Interpretating the Metropolitan Achievement Tests. New York: Harcourt Brace Jovanovich, Inc., 1973.

Featherstone, H. J. Cognitive Effects of Preschool Programs on Different Types of Children. Report for the Office of Child Development (DHEW), Cambridge, Massachusetts: Huron Institute, 1973. (ERIC ED 082 838).

Fisher, M. E. A Comparative Study of Achievement in the Concepts of Fundamentals of Geometry taught by Computer Managed Individualized Behavioral Objective Instructional Units versus Lecture-demonstration Methods of Instruction. (Doctoral Dissertation, George Washington University) Ann Arbor, Michigan: University Microfilms, order no. 73-25, 330, 1973. (ERIC ED 085 272).

Gagne, R. M. Policy Implications and Future Research: A Response. In Do Teachers Make A Difference? A Report on Recent Research on Pupil Achievement. Washington, D.C.: Bureau of Educational Personnel Development, Office of Education, 1970.

Gates, A. I., and MacGinitie, W. H. Technical Manual: Gates-MacGinitie Reading Tests. New York: Teachers College Press, Columbia University, 1972.

Glendening, L. and Porter, A. C. The Effects of Correlated Units of Analysis: Violating the Assumption of Independence (Measurement and Methodology Program Working Paper). Washington, D.C.: National Institute of Education, 1974.

Haak, R. A. The Peer Jury Rating System. Austin: The University of Texas Research and Development Center for Teacher Education, 1974. (R&D Report No. 2335.)

Hall, G. E., George, A. A., and Rutherford, W. L. Measuring Stages of Concern About the Innovation: A Manual for the Use of the SoC Questionnaire. Austin: The University of Texas Research and Development Center for Teacher Education, 1977.

Hoepfner, Ralph, et al. (Eds.) CSE Elementary School Test Evaluations. Los Angeles: Center for the Study of Evaluation, University of California, 1970.

Hoepfner, Ralph, et al. (Eds.) CSE- RBS Test Evaluations: Tests of Higher-Order Cognitive, Affective, and Interpersonal Skills. Los Angeles: Center for the Study of Evaluation, University of California, 1972.

Holland, J. L. Some Practical Remedies for Providing Vocational Guidance for Everyone. Paper presented at the Minnesota Statewide Testing Programs Meeting, Minneapolis, 1973. (ERIC ED 086 926).

Hollingshead, A. B. and Redlich, F. C. Social Class and Mental Illness. New York: John Wiley, 1958.

Hunt, D. E. Person-environment Interaction: A Challenge Found Wanting Before it was Tried. Review of Educational Research, 1974, 45(2), 209-230.

Instructional Objective Exchange. Attitude Toward School, Grades K-12 Los Angeles: University of California, 1972.

Koran, M. L. Differential Response to Inductive and Deductive Instructional Procedures. Journal of Educational Psychology, 1971, 62(4), 300-307.

Krathwohl, David R., Bloom, Benjamin S., and Masia, Bertram B. Taxonomy of Educational Objectives: The Classification of Educational Goals Handbook II: Affective Domain. New York: David McKay Company, Inc., 1964.

Kress, G. C., Jr., and Gropper, G. L. A Comparison of Two Strategies for Individualizing Fixed-pace Programmed Instruction. American Educational Research Journal, 1966, 3, 273-280.

Lesser, G. Postscript: Matching Instruction to Student Characteristics. In G. Lesser (ed.), Psychology and Educational Practice. New York: Scott Foresman, 1971.

Lippmann, G. K. Personality Correlates of Differential Performance and Satisfaction in Self-directed vs. Teacher-directed Instructional Strategies. Dissertation Abstracts International, 1970, 31(3A), 1119-1120.

Marston, P. T. A Simulation Study of Four Methods Used to Analyze Change. Austin: Research and Development Center for Teacher Education, The University of Texas, 1978. (R&D Report No. 5058)

Marston, P. T., and Borich, G. D. Analysis of Covariance: Is it the Appropriate Model to Study Change? Paper presented at the American Educational Research Association Annual Meeting, New York, April 1977. Austin: The University of Texas Research and Development Center for Teacher Education. (R&D Report No. 5044.)

Mauer, C. L. A Study of the Relationship of Early Special Class Placement and the Self-Concepts of Mentally Handicapped Children. Unpublished D.Ed. dissertation, Syracuse University, 1975.

Mayeske, G. W. et al. Our Nations's Schools. Washington, D.C.: U.S. Office of Education, 1969.

Medley, Donald M. Teacher Competence and Teacher Effectiveness. Washington, D.C.: American Association of Colleges for Teacher Education, 1977.

Mood, A. M. Partioning Variance in Multiple Regression Analyses as a Tool for Developing Learning Models. American Educational Research Journal, 1971, 8(2), 191-202.

Peck, R. F. Proposal for the Mental Health in Teacher Education Project to National Institute of Mental Health. Austin: The University of Texas, Research and Development Center for Teacher Education, 1958.

Peck, R. F. Predicting Principals' Ratings of Teacher Performance from Personality Data. Journal of Educational Psychology, 1959, 50(2), 70-74. Austin: The University of Texas, Research and Development Center for Teacher Education. (R&D Report No. 2368).

Peck, R. F. Personality Patterns of Prospective Teachers. Journal of Experimental Education, 1960, 29(2), 169-175. Austin: The University of Texas, Research and Development Center for Teacher Education. (R&D Report No. 2184.)

Peck, R. F. Proposal for the Teacher Personality, Teacher Education and Teaching Behavior Study, submitted to U.S. Office of Education. Austin: The University of Texas, Research and Development Center for Teacher Education, 1962.

Peck, R. F. Program Design for the R & D Center for Teacher Education. Austin: The University of Texas, Research and Development Center for Teacher Education, 1965.

Peck, R. F. Coping Styles: A Conceptualization of Affective Human Behavior. Proceedings of the XIth. Interamerican Congress of Psychology, Mexico City, December 1967, Vol. I, Part II, No. 9.

Peck, R. F. *Proposal for the Individualized Teaching for Effective Coping Project in Annual Report for 1968*. Austin: The University of Texas, Research and Development Center for Teacher Education, 1968.

Peck, R. F. Personalized Education: An Attainable Goal in the Seventies. Austin: The University of Texas, Research and Development Center for Teacher Education, 1970. (R&D Report No. 1036. ERIC ED 051 137).

Peck, R. F., Clements, R. O., and Weber, D. A. Is There Ethnic Bias in Poor Appraisals in Tri-ethnic Classes? Paper presented at the April 1977 meetings of the American Educational Research Association. Austin: The University of Texas, Research and Development Center for Teacher Education.

Peck, R. F., *et al*. A Longitudinal Study of Coping Skills, Ages 14-29. Austin: The University of Texas, Personality Research, 1982.

Peck, R. F., and Fox, R. B. Personal Characteristics of Teachers that Affect Student Learning. Unpublished manuscript, 1977a. Austin: The University of Texas, Research and Development Center for Teacher Education.

Peck, R. F., and Fox, R. B. Teacher Behavior, Student Time-On-Task and Student Outcomes as a Linked Chain. Unpublished manuscript, 1977b. Austin: The University of Texas, Research and Development Center for Teacher Education.

Peck, R. F., Hughes, R., *et al*. *Coping Styles and Achievement: A Cross-National Study of School Children (7 vols.)* Austin: The University of Texas, Research and Development Center for Teacher Education, 1972-1981. (ERIC ED 206 157, 065 825, 067 607, 078 342, 092 835)

Peck, R. F., Olsson, G., and Green, J. The Consistency of Individual Teaching Behavior. Unpublished manuscript, 1977. Austin: The University of Texas, Research and Development Center for Teacher Education.

Peck, R. F., and Parsons, J. W. Personality Factors in Work Output: Four Studies of Factory Workers. *Personnel Psychology*, 1956, *9*(1), 49-79.

Peck, R. F., and Veldman, D. J. *Proposal for the Computer Analysis of Personality Project Submitted to National Institute of Mental Health*. Austin: The University of Texas, Research and Development Center for Teacher Education, 1962.

Pervin, L. A. Performance and Satisfaction as a Function of Individual-Environment Fit. *Psychological Bulletin*, 1968, *69*(1), 56-68.

Piers, E. V. Children's Self-Ratings and Rating by Others. Unpublished paper.

Piers, E. V. Manual for the Piers-Harris Children's Self-Concept Scale (The Way I Feel About Myself). Nashville: Counselor Recordings and Tests, 1969.

A Practical Guide to Measuring Project Impact on Student Achievement. (U.S. Office of Education, DHEW, Monograph Series), Washington, D.C.: U.S. Government Printing Office, 1975.

Prescott, G. A. Manual for Interpretation: Metropolitan Achievement Tests. New York: Harcourt Brace Jovanovich, Inc., 1973.

Riders on the Earth. Toronto, Ontario: Holt, Rinehart, and Winston, 1973.

Roe, A. The Making of a Scientist. New York: Dodd, Mead and Company, 1953.

Roe, A. The Psychology of Occupations. New York: John Wiley & Sons, Inc., 1956.

Ryans, D. G. Characteristics of Teachers. Washington D.C.: American Council on Education, 1960.

Ryans, D. G. Characteristics of Teachers: Their Description, Comparison, and Appraisal. Washington, D.C.: American Council on Education, 1970.

Ryans, D. G. Characteristics of Teachers in Relation to Financial and Cultural Conditions of their Childhood Homes. 1972. (ERIC ED 086 700).

Salomon, G. Instructional System Development and Individual Differences. Viewpoints, 1971, 47(4), 176-194.

Salomon, G. Heuristic Models for the Generation of Aptitude-Treatment Interaction Hypothesis. Review of Educational Research, 1972, 42, 327-343.

Shores, R. E. Performance of Learning Disabled and Normal Children from Differing Social Classes Under Tangible or Intangible Reinforcement Conditions. Exceptional Children, 1969, 35(8), 643-644.

Siegelman, M., and Peck, R. F. Personality Patterns Related to Occupational Roles. Genetic Psychology Monographs, 1960, 61, 291-349.

Sipay, E. R. Mastery Tests to Accompany into New Worlds. New York: The MacMillan Company, 1970.

Smith, D. E., Wood, R. L., Downer, J. W., and Raygor, A. L. Reading Improvement as a Function of Student Personality and Teaching Method. Journal of Educational Psychology, 1956, 47, 47-59.

Soar, R. S. An Integration of Findings from Four Studies of Teacher Effectiveness. Paper presented at a national invitational conference sponsored by the National Institute of Education, the Far West Laboratory for Educational Research and Development, and the California Commission for Teacher Preparation and Licensing, San Diego, California, August, 1975.

Soar, R. S. and Soar, R. M. An Attempt to Identify Measures of Teacher Effectiveness from Four Studies. Gainsville, Florida: Institute for Development of Human Resources, 1976.

Spaulding, R. L. Durham Education Improvement Program, Final Report (3 Vols.) Durham, North Carolina: Duke University, 1970.

Srole, L., Langner, T. S., Michael, S. T., Opler, M. K., and Rennie, T. A. C. Mental Health in the Metropolis. Vol. I. New York: McGraw-Hill, 1962.

Stanwyck, D. J., and Felker, D. W. Intellectual Achievement Responsibility and Anxiety as Functions of Self-Concept of Third to Sixth Grade Boys and Girls. Paper presented at the annual meeting of the American Educational Research Association, New York, 1973. (ERIC ED 080 903).

Stearns, M. S. Report on Preschool Programs: The Effects of Preschool Programs on Disadvantaged Children and Their Families. Washington, D. C.: U.S. Government Printing Office, 1971.

Stern, G. M., Stein, M., and Bloom, B. Methods in Personality Assessment. Glencoe, Illinois: Free Press, 1956.

Super, D. E. The Psychology of Careers. New York: Harper, 1957.

Super, D. E. Occupational Psychology. Bellmont, California: Wadsworth Publishing Company, 1970.

Tallmadge, G. K., and Shearer, J. W. Interactive Relationships Among Learner Characteristics, Types of Learning, Instructional Methods and Subject Matter Variables. Journal of Educational Psychology, 1971, 62(1), 31-38.

Taylor, J. E., et al. The Interrelationships of Ability Level, Instructional System, and Skill Acquisition. Paper presented at the American Psychological Association annual meeting, Miami Beach, Florida, September 1970. (ERIC ED 061 725).

Test for Exploring Afar. Morristown, New Jersey: Scott, Foresman and Co. 1974.

Veldman, D. J., and Menaker, S. C. Directed Imagination for Projective Assessment of Teacher Candidates. Journal of Educational Psychology, 1969, 60(3), 178-187.

Washburne, C., and Heil, L. M. What Characteristics of Teachers Affect Children's Growth? School Review, 1960, 68, 420-428.

Weinberg, M. Minority Students: A Research Appraisal. Washington, D.C.: U.S. Government Printing Office, 1977.

Wittrock, M. C. and Wiley, D. C. (Eds.) The Evaluation of Instruction: Issues and Problems. New York: Holt, Rinehart and Winston, 1970.

REFERENCES

Development and Use of Criterion Referenced Tests

Block, J. H. Criterion referenced measurements: Potential. School Review, 1971, 79, 289-298.

Boehm, A. E. Criterion-referenced assessment for the teacher. Teacher's College Record, 1973, 75(1), 117-126.

Brazziel, W. F. Criterion-referenced tests--some trends and prospects. Today's Education, 1972, 61(8), 52-53.

Brennan, R. L. The evaluation of mastery test items. Final report. Grant No. OEG-2-2-2B118, Washington, D. C.: National Center for Educational Research and Development, 1974. (ERIC ED 092 593.)

Carroll, J. B. Problems of measurement related to the concept of learning for mastery, Educational Horizons, 1970, 48, 71-80.

Cartier, F. A. Criterion referenced tests of language skills. Tesol Quarterly, 1968, 2(1), 27-32.

Cooper, M. P. Criterion-referenced test development--a contractual agreement between the public schools of the District of Columbia and a commercial test publisher. Charleston, West Virginia: West Virginia State Department of Education, 1973. (ERIC ED 078 047.)

Davis, F. B. Criterion-referenced measurement. National Institute of Education (DHEW), Princeton, New Jersey: Educational Testing Service, ERIC Clearinghouse on tests, measurement, and evaluation, 1973. (ERIC ED 073 143.)

Dziuban, C. D. & Vickery, K. V. Criterion-referenced measurement: Some recent developments. Educational Leadership, 1973, 30(5), 483-486.

Ebel, R. L. Criterion referenced measurement: Limitations. School Review, 1971, 79, 282-298.

Emrick, J. A. An evaluation model for mastery testing. Journal of Educational Measurement, 1971, 8, 321-326.

Glaser, R. & Cox, R. C. Criterion referenced testing for the measurement of educational outcomes. In R. A. Weisgerberg (ed.) Instructional process and media innovation. New York, New York: Macmillan, 1970.

Gorth, W. P. & Hambleton, R. K. Measurement considerations for criterion-referenced testing and special education. The Journal of Special Education, 1972, 6(4), 303-314.

Hambleton, R. K. & Novick, M. R. Toward an integration of theory and method for criterion-referenced tests. Journal of Educational Measurement, 1973, 10(3), 159-170.

Klein, S. P. & Kosecoff, J. Issues and procedures in the development of criterion referenced tests. Report for the National Institute of Education (DHEW), Princeton, New Jersey: ERIC Clearinghouse on tests, measurement and evaluation, 1973. (ERIC ED 083 284.)

Livingston, S. A. Criterion referenced applications of classical test theory. Journal of Educational Measurement, 1972, 9, 13-26.

McDonald, T. F. & Moorman, G. B. Criterion referenced testing for functional literacy. Journal of Reading, 1974, 17(5), 363-366.

Millman, J. Criterion referenced measurement: An alternative. The Reading Teacher, 1972, 26, 278-281.

Millman, J. Passing scores and test lengths for domain referenced measures. Review of Educational Research, 1973, 43(2), 205=216.

Pikulaki, J. J. Criterion referenced measures for clinical evaluations. Paper presented at the annual meeting of the College Reading Association, Silver Springs, Maryland, November, 1973. (ERIC ED 085 660.)

Popham, W. J. Technical travails of developing criterion-referenced tests. Paper presented at the annual meeting of the national council on measurement in education, Chicago, April 1974. (ERIC ED 091 421.)

Popham, W. J. & Husek, T. R. Implications of criterion referenced measuement. Journal of Educational Measurement, 1969, 6(1), 1-9.

Proger, B. B. & Mann, L. Criterion-referenced measurement: The world of grey vs. black and white. Journal of Learning Disabilities, 1973, 6, 72-84.

Roberts, T. Some utilities of criterion testing. Paper presented at the Learning Disabilities Conference, Longmont, Colorado, December 1972. (ERIC ED 081 799.)

Rondabush, G. E. Item selection for criterion-referenced tests. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, February 1973. (ERIC ED 074 147.)

Royal, M. Performance objectives and C-R tests--we wrote our own! The Reading Teacher, 1974, 27(7), 701-703.

Shoemaker, D. M. Improving criterion-referenced measurement. _Journal of Special Education_, 1972, _6_(4), 315-323.

Smith, C. W. Criterion-referenced assessment in contrast to norm-referenced measurement. _Marquetta University Education Review_, 1974, _4_(2), 23-32.

RELEVANT BOOK WHICH IS PRESENTLY CHECKED OUT OF UT SYSTEM:

Popham, W. J. _Criterion referenced measurement: An introduction_.

References for Student Search

Adams, G. S., & Torgerson, T. L. *Measurement and Evaluation*. New York, New York: The Dryden Press, 1956.

Ahmann, J. S., Glock, M. D., & Wardeberg, H. L. *Evaluating Elementary School Pupils*. Boston, Massachusetts: Allyn and Bacon, Inc., 1960.

Allen, V. L. The development of conformity and independence. Report from the project on role theory analysis of peer-teaching techniques. Contract No. OEC-5-10-154. Madison, Wisconsin: Wisconsin University, Research and Development Center for Cognitive Learning, 1971. (ERIC ED 051 537.)

Asmundson, M. S. *A preliminary screening program to identify functioning strengths and weaknesses in pre-school children*. Masters Thesis, Moorhead State College, Minnesota, 1972. (ERIC ED 071 743.)

Barclay, J. R. Measuring the social climate of the classroom. Paper presented at the meeting of the American Educational Research Association, Symposium of Measuring the Social Climate of the Classroom, New York, New York, 1971. (ERIC ED 051 277.)

Borich, D., & Madden, S. *Evaluating classroom instruction: Sourcebook of instruments*. Austin, Texas: Addison - Wesley, 1977.

Buros, O. K. *The fifth mental measurements yearbook*. Highland Park, New Jersey: The Gryphon Press, 1959.

Buros, O. K. *The seventh mental measurements yearbook*. Highland Park, New Jersey: The Gryphon Press, 1972.

Buros, O. K. (Ed.) *Tests in print*. Highland Park, New Jersey: The Gryphon Press, 1961.

Cattell, R. B., & Beloff, H. Research origin and construction of the IPAT Junior Personality Quiz. *Journal of Consulting Psychology*, 1953, *17*(6), 436-441.

Coller, A. R. *The assessment of self-concept in early childhood education*. Urbana, Illinois: ERIC Clearinghouse of Early Childhood Education, University of Illinois at Urbana-Champaign.

Cooley, W. W., & Reed, H. B. The measurement of science interests: An operational and multidimensional approach. *Science Education*, 1961, *45*(4), 320-326.

Dunkin, M. J., & Biddle, B. J. *The study of teaching*, New York, New York: Holt, Rhinehart, and Winston, 1974.

Gage, N. L., Leavitt, G. S., & Stone, G. C. Teachers' understanding of their pupils and pupils' ratings of their teachers. *Psychological Monographs*, 1955, *69*(406), 17-21.

References for student search continued

Godfrey, E. (Ed.) Intelligence, achievements, self-concepts, and attitudes among 1216 typical sixth- and seventh-grade students in fourteen North Carolina public Schools: Preliminary results of a study conducted January, 1970. Winston-Salem, North Carolina: North Carolina Advancement School, 1970. (ERIC ED 045 760.)

Herr, E. L., Kight, H. R., Hansen, J. C. The relation of students' needs to their perceptions of a high school environment. *The Journal of Educational Research*, 1967, *61*(2), 51-52.

Hoepfner, R., Hemenway, J., DeMuth, J., Tenopyr, M. L., Granville, A. C., Petrosko, J. M., Krakower, J., Silberstein, R., & Nadeau, M. A. *CSE-RBS test evaluations: Tests of higher-order cognitive, affective, and interpersonal skills*. Los Angeles, California: Center for the Study of Evaluation, University of California, 1972.

Holtzman, W. H., & Brown, W. F. Evaluating the study habits and attitudes of high school students. *Journal of Educational Psychology*, 1968, *59*(6), 404-409.

Horrocks, J. E. *Assessment of behavior*. Columbus, Ohio: Charles E. Merrill Books, Inc., 1964.

Johnson, O. G., & Bommarito, J. W. *Tests and measurements in child development: A handbook*. San Francisco, California: Jossey Bass, Inc., 1971.

Lake, D. G., Miles, M. B., & Earle, R. B. *Measuring human behavior*. New York, New York: Columbia University, Teachers College Press, 1973.

Medley, D. M. Teacher personality and teacher-pupil rapport. *Journal of Teacher Education*, 1961, *12*(2), 152-153.

Nelson, C. C. Affective and cognitive attitudes of junior high school teachers and pupils. *The Journal of Educational Research*, 1964, *58*(2), 81-83.

North Carolina Advancement School. A research report of the North Carolina Advancement School: Spring semester 1968 follow-up. Winston-Salem, North Carolina: North Carolina Advancement School, 1969. (ERIC ED 045 762.)

Rardin, D. R., & Moan, C. E. Peer interaction and cognitive development. *Child Development*, 1971, *52*(5), 1685-1699.

Rosenshine, B. Evaluation of classroom instruction. *Review of Educational Research*, *40*(2), 287.

Ross, A. O., Lacy, H. M., & Parton, D. A. The development of a behavior checklist for boys. *Child Development*, 1965, *36*, 1013-1027.

Schwartz, J. D. The effects of novel stimulation on arousal level in young children alone and with a friend. Report No. OEO-4120. New York, New York: Syracuse University, 1969. (ERIC ED 057 894.)

Shaw, M. E., & Wright, J. M. *Scales for the measurement of attitudes*. New York, New York: McGraw-Hill, 1967.

References for student search

Smithsonian Science Information Exchange, Inc., Washington, D. C.: The Smithsonian Institute, 1973.

Tenenbaum, S. A test to measure a child's attitude toward school, teachers, and classmates. Education Administration and Supervision, 26(3), 176-188.

Walberg, J. J., & Anderson, G. J. Classroom climate and individual learning. Journal of Educational Psychology, 59, 415.

Wallen, N. The Taba Curriculum Development Project in social studies, Development of a comprehensive curriculum model for social studies for Grades 1-8 inclusive of precedures for implementation and dissemination. Final Report. San Francisco, California: San Francisco State College, 1969. (ERIC ED 040 106.)

Williams, R. C. Personality, ability, and achievement correlates of scholastic attitudes. Journal of Educational Research, 1970, 63(9), 401-403.

APPENDIX D

INSTRUMENTS

TABLE OF CONTENTS

APPENDIX D
INSTRUMENTS

Student Measures

Student Biographical Form D-5
    1975-1976 version D-5
    1974-1975 version D-7
Student Sentence Completion D-9
    1975-1976 version D-9
    1974-1975 version D-15
Piers-Harris Children's Self-Concept Scale D-21
    (Student Self-Description) D-21
    1975-1976 version D-21
    1974-1975 version D-23
How This Class Makes Me Feel D-27
Behavior Rating Scale D-29
    1975-1976 version D-29
    1974-1975 version D-31
School Sentiment Index D-33
    1975-1976 version D-33
    1974-1975 version D-35
Student Evaluation of Teaching D-39
    1975-1976 version D-39
    1974-1975 version D-41

Teacher Measures

Teacher Biographical Form D-43
Adjective Self-Description D-45
Student Description D-47
Concerns Questionnaire D-49
Teacher Reaction Form D-55
Class Checklist D-57

1975-76

STUDENT BIOGRAPHICAL FORM

1. Name ______________________________

2. Age ______________ Birthdate ______________

3. Sex ______________________________

4. Grade ______________________________

5. If you have any brothers or sisters, we would like to know how old they are. Please write the names and age of each brother or sister in the space below.

A. Do you have an older brother or brothers? If so, write the name and age of each.

Name	Age	Name	Age	Name	Age

B. Do you have a younger brother or brothers? If so, write the name and age of each.

Name	Age	Name	Age	Name	Age

C. Do you have an older sister or sisters? If so, write the name and age of each.

Name	Age	Name	Age	Name	Age

D. Do you have a younger sister or sisters? If so, write the name and age of each.

Name	Age	Name	Age	Name	Age

E. If you have a twin brother or twin sister, write his or her name here.

Twin brother ______________ Twin sister ______________

6. Father's highest grade in school____________________________________

7. Father's job (what does he do?)____________________________________

8. Mother's highest grade in school____________________________________

9. Mother's job (what does she do?)____________________________________

STUDENT BIOGRAPHICAL FORM

1. Name________________________________
2. Age______________Birthdate______________________
3. Sex________________________________
4. Grade________________________________
5. Number of older brothers and sisters____________________
6. Number of younger brothers and sisters____________________
7. Father's highest grade in school____________________
8. Father's job________________________________
9. Mother's highest grade in school____________________
10. Mother's job________________________________

1975-76 version

STUDENT SENTENCE COMPLETION

Name ______________________________ Date ______________

Teacher ______________________________

Choose the response that you agree with the most to finish each sentence, and put a check beside it.

1. If I made a mistake in my lessons and my classmates laughed at me, I would ....

_____ get back at them later

_____ not pay attention to them

_____ be embarrassed

_____ correct my mistake

2. Most people treat other people ....

_____ in a friendly manner

_____ without enough respect

_____ the way they feel about them

_____ like dirt

3. Trying to do something better than other people is ...

_____ hard, but sometimes fun

_____ unpleasant

_____ hard work

_____ being jealous

4. Worrying about school grades is ...

_____ natural

_____ important

_____ scary

_____ useless

5. When my friends and I can't agree on what to do, I ...

_____ argue

_____ go along with their ideas

_____ take turns doing the others' ideas

_____ do something by myself

6. I think most policemen ...

_____ help you

_____ are mean

_____ are sometimes rough

_____ keep people from breaking the law

7. When I have hard schoolwork to do, I ...

_____ ask someone to show me how

_____ do something else for a while

_____ sometimes don't do it

_____ do it the best I can

8. If the class bully were bothering me, I would ....

_____ get mad

_____ tell him to leave me alone

_____ not pay attention to him

_____ sock him

9. I think most teachers ...

_____ expect too much

_____ are mean

_____ are nice, sometimes

_____ are doing a good job

10. If one of my friends is mad at me, I ...

_____ don't say a word

_____ feel bad

_____ get mad at him too

_____ try to make up with him

11. I think most adults ...

_____ worry too much

_____ are helpful

_____ are sometimes nice and sometimes not

_____ don't listen to children

12. When someone hurts my feelings, I ...

_____ feel sad

_____ try to be friendly

_____ tell them off

_____ don't pay attention to them

13. When you work with people your own age, they ...

_____ help a lot

_____ try to tell you what to do

_____ don't always do their share

_____ need to know what to do

14. When there is something hard to do, I ...

_____ get worried

_____ go find someone to help me

_____ sometimes find it interesting

_____ do it, though I don't like to

15. When my parents make me mad, I ...

_____ talk to them about it

_____ go away

_____ feel like throwing things

_____ feel terrible

16. I think school is ...

_____ boring, sometimes

_____ a great chance to learn

_____ something I wish I didn't have to do

_____ something you need

17. When one of my parents gets mad at me, I ...

_____ ask him or her why

_____ get mad

_____ can take it

_____ feel awful

18. When I notice that others do better in school than I, I ...

_____ don't care

_____ think they may be smarter

_____ want to do better

_____ work hard to do better

19. I think most people my age are ...

_____ not trusted when they should be

_____ nice

_____ hard to understand

_____ good and bad

20. When people don't listen to me, I ...

_____ feel lonely

_____ don't like them

_____ find something else to do

_____ do something so that they will notice me

21. People my age who work with me are ...

_____ out for themselves

_____ a little lazy

_____ sometimes nice and sometimes not

_____ very helpful

22. When one of my parents punishes me, I ...

_____ explain my side

_____ just sit there

_____ get very upset

_____ get mad but learn my lesson

23. If I almost never win at a certain game, I ...

_____ practice

_____ start doing something else

_____ stop playing

_____ feel bad

24. When people tell me to do something, I ...

_____ might not do it

_____ do it if I want to

_____ do it right

_____ do it, but I don't like it

25. When I get worried, I ...

_____ can't think

_____ ask myself what's wrong

_____ feel just awful

_____ ask someone what to do

26. Hard work is ...

_____ something I don't like

_____ the best kind of work

_____ school work

_____ for dumb people

27. When I get mad, I ...

_____ feel mean

_____ blow my top

_____ try to cool off

_____ have to be by myself

28. Having rules set by my parents ...

_____ sometimes bothers me

_____ is a bad idea

_____ is the best thing a family can do

_____ is sometimes fair and sometimes unfair

STUDENT SENTENCE COMPLETION

1974-75 version

Name________________________ Date________________________

Teacher________________________

Choose the response that you agree with the most to finish each sentence, and put a check beside it.

1. Worrying about school grades is ____________________.

_____ natural

_____ important

_____ scary

_____ useless

2. If my friends and I couldn't agree on what to do, I ____________________.

_____ wouldn't like it

_____ go along with their ideas

_____ would take turns doing the others' ideas

_____ do something by myself

3. If a big dog looked like he were about to attack me, I ____________________.

_____ leave fast

_____ try to keep calm

_____ am scared

_____ would get hurt

4. I think most policemen are ____________________.

_____ mean

_____ sometimes rough

_____ enforcing the law

_____ friendly

5. If I have difficult homework to do, I ____________________.

_____ ask someone to show me how

_____ don't like it

_____ sometimes let it go

_____ do it the best I can

6. If the class bully were bothering me, I would ______________________.

______ ask him to leave me alone

______ ignore him

______ sock him

______ get mad

7. I think most teachers are ______________________.

______ too hard

______ mean

______ nice, sometimes

______ doing a good job

8. If one of my friends is made at me, I ______________________.

______ don't say a word

______ feel bad

______ get mad at them too

______ try to make up with him

9. I think most adults______________________.

______ worry too much

______ are helpful

______ are sometimes nice and sometimes not

______ don't listen to children

10. When someone hurts my feelings, I ______________________.

______ feel sad

______ try to be friendly

______ tell them off

______ ignore them

11. When you work with people your own age, they ____________________.

_______ help a lot

_______ try to boss you

_______ don't always do their share

_______ need to know what to do

12. When there is something difficult to do, I ____________________.

_______ go find someone to help me

_______ enjoy doing it

_______ do it, though I don't like to

_______ get worried

13. When my parents make me mad, I ____________________.

_______ talk to them about it

_______ go away

_______ feel like throwing things

_______ feel terrible

14. I think school is ____________________.

_______ boring, sometimes

_______ a great opportunity to learn

_______ something I wish I didn't have to do

_______ necessary

15. If I made a mistake in my lessons and my classmates laughed at me, I would ____________________.

_______ get even later

_______ ignore them

_______ be embarrassed

_______ correct myself

16. When my father bawls me out, I ______________________________.

_______ ask him why

_______ get mad

_______ can take it

_______ feel awful

17. When I notice that others do better in school than I, I ______________.

_______ don't care

_______ realize they may be smarter

_______ want to do better

_______ work hard to improve

18. I think most people my age are ________________________.

_______ not trusted when they should be

_______ nice

_______ hard to understand

_______ good and bad

19. When people ignore me, I ______________________.

_______ feel lonely

_______ don't like them

_______ find something else to do

_______ do something so that they will notice me

20. People my age who work with me are ________________________.

_______ out for themselves

_______ a little lazy

_______ some are nice, some are not

_______ very helpful

21. When my mother punishes me, I ______________________________.

______ explain my side

______ just sit there

______ get very upset

______ get mad but learn my lesson

22. If I lose most of the time at playing a certain game, I ________________.

______ would practice

______ start doing something else

______ stop playing

______ feel bad

23. When people tell me to do something, I ____________________________.

______ probably will not do it

______ do it if I want to

______ do it right

______ complain but I do it

24. When I get worried, I ______________________________.

______ shake

______ ask myself what's wrong

______ feel just awful

______ ask someone what to do

25. Hard work is ________________________________.

______ something I don't like

______ the best kind of work

______ school work

______ for unintelligent people

26. When I get mad, I ______________________________.

_______ am grouchy

_______ blow my top

_______ try to cool off

_______ have to be my myself

27. Having rules set by your parents is ______________________________.

_______ a nuisance

_______ a bad idea

_______ the best thing a family can do

_______ sometimes fair and sometimes unfair

28. Most people treat other people ______________________________.

_______ in a friendly manner

_______ without enough respect

_______ the way they feel about them

_______ like dirt

29. Trying to do something better than other people is ____________________.

_______ hard, but sometimes fun

_______ unpleasant

_______ hard work

_______ jealousy

STUDENT SELF DESCRIPTION

F T 1. I am often sad.

F T 2. I am smart.

F T 3. I cause trouble to my family.

F T 4. I have good ideas.

F T 5. I am good in my school work.

F T 6. I am slow in finishing my school work.

F T 7. I often feel nervous.

F T 8. I can give a good report in front of the class.

F T 9. In school I am a day dreamer.

F T 10. My friends like my ideas.

F T 11. I often get into trouble.

F T 12. I have good luck.

F T 13. I worry a lot.

F T 14. I like being the way I am

F T 15. I feel left out of things.

F T 16. I am among the last to be chosen for games.

F T 17. I am often mean to other people.

F T 18. My classmates in school think I have good ideas.

F T 19. I am unhappy a lot.

F T 20. I have many friends.

F T 21. I am cheerful.

F T 22. I am dumb about most things.

F T 23. I am good looking.

F T 24. I am popular.

F T 25. People pick on me.

Student Self-Description
Page 2

F T 26. My family is disappointed in me.

F T 27. I have a pleasant face.

F T 28. When I try to make something, everything seems to go wrong.

F T 29. I am a leader in games and sports.

F T 30. I am clumsy.

F T 31. I forget what I learn.

F T 32. I am always dropping or breaking things.

F T 33. I am a good person.

1974-75 version

*

Here are a set of statements. Some of them are true of you and so you will circle the *yes*. Some are not true of you and so you will circle the *no*. Answer *every* question even if some are hard to decide, but do *not* circle both *yes* and *no*. Remember, circle the *yes* if the statement is *generally* like you, or circle the *no* if the statement is generally not like you. There are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

1. My classmates make fun of me . . . . yes no
2. I am a happy person . . . . yes no
3. It is hard for me to make friends . . . . yes no
4. I am often sad . . . . yes no
5. I am smart . . . . yes no
6. I am shy . . . . yes no
7. I get nervous when the teacher calls on me . . . . yes no
8. My looks bother me . . . . yes no
9. When I grow up, I will be an important person . . . . yes no
10. I get worried when we have tests in school. . . . . yes no
11. I am unpopular . . . . yes no
12. I am well behaved in school . . . . yes no
13. It is usually my fault when something goes wrong . . . . yes no
14. I cause trouble to my family . . . . yes no
15. I am strong . . . . yes no
16. I have good ideas . . . . yes no
17. I am an important member of my family . . . . yes no
18. I usually want my own way . . . . yes no
19. I am good at making things with my hands . . . . yes no
20. I give up easily . . . . yes no

21. I am good in my school work . . . . yes no
22. I do many bad things . . . . yes no
23. I can draw well . . . . yes no
24. I am good in music . . . . yes no
25. I behave badly at home . . . . yes no
26. I am slow in finishing my school work . . . . yes no
27. I am an important member of my class . . . . yes no
28. I am nervous . . . . yes no
29. I have pretty eyes . . . . yes no
30. I can give a good report in front of the class. . . . . yes no
31. In school I am a dreamer . . . . yes no
32. I pick on my brother(s) and sister(s) . . . . yes no
33. My friends like my ideas . . . . yes no
34. I often get into trouble . . . . yes no
35. I am obedient at home . . . . yes no
36. I am lucky . . . . yes no
37. I worry a lot . . . . yes no
38. My parents expect too much of me . . . . yes no
39. I like being the way I am . . . . yes no
40. I feel left out of things . . . . yes no

41. I have nice hair . . . . yes no
42. I often volunteer in school . . . . yes no
43. I wish I were different . . . . yes no
44. I sleep well at night . . . . yes no
45. I hate school . . . . yes no
46. I am among the last to be chosen for games . . . . yes no
47. I am sick a lot . . . . yes no
48. I am often mean to other people . . . . yes no
49. My classmates in school think I have good ideas . . . . yes no
50. I am unhappy . . . . yes no
51. I have many friends . . . . yes no
52. I am cheerful . . . . yes no
53. I am dumb about most things . . . . yes no
54. I am good looking . . . . yes no
55. I have lots of pep . . . . yes no
56. I get into a lot of fights . . . . yes no
57. I am popular with boys . . . . yes no
58. People pick on me . . . . yes no
59. My family is disappointed in me . . . . yes no
60. I have a pleasant face . . . . yes no

61. When I try to make something, everything seems to go wrong . . . . . yes no

62. I am picked on at home . . . . yes no

63. I am a leader in games and sports . . . . yes no

64. I am clumsy . . . . yes no

65. In games and sports, I watch instead of play . . . . yes no

66. I forget what I learn . . . . yes no

67. I am easy to get along with . . . . yes no

68. I lose my temper easily . . . . yes no

69. I am popular with girls . . . . yes no

70. I am a good reader . . . . yes no

71. I would rather work alone than with a group . . . . yes no

72. I like my brother (sister) . . . . yes no

73. I have a good figure . . . . yes no

74. I am often afraid . . . . yes no

75. I am always dropping or breaking things . . . . yes no

76. I can be trusted . . . . yes no

77. I am different from other people . . . . yes no

78. I think bad thoughts . . . . yes no

79. I cry easily . . . . yes no

80. I am a good person . . . . yes no

Score: ______

Spring 1976

HOW THIS CLASS MAKES ME FEEL

Name ____ Date ____________________

Teacher ______________________________________

The way I was treated in this class, this year, has made me feel this way about myself:

	Never		Some-times		Always
1. It has made me feel good about my ability to do good work.	☐	☐	☐	☐	☐
2. It has made me feel left out.	☐	☐	☐	☐	☐
3. It has made me feel comfortable with the teacher.	☐	☐	☐	☐	☐
4. It has made me feel unhappy.	☐	☐	☐	☐	☐
5. It has made me feel that the class listens to my ideas.	☐	☐	☐	☐	☐
6. It has made me feel that the teacher does not like me.	☐	☐	☐	☐	☐
7. It has made me feel as if nobody thinks I am smart.	☐	☐	☐	☐	☐
8. It has made me glad to be here.	☐	☐	☐	☐	☐
9. It has made me feel that nobody cares what I think.	☐	☐	☐	☐	☐
10. It has made me feel that the other people are happy to have me in class.	☐	☐	☐	☐	☐

BRS-75

BRS

1976 (Post)

On this page you are thinking about: ______________________________

Put an X in the box on each line that comes closest to telling how this person usually acts.

	Never 1	2	Some-times 3	4	Always 5
1. Works hard	☐	☐	☐	☐	☐
2. Goes along with the crowd	☐	☐	☐	☐	☐
3. Worries	☐	☐	☐	☐	☐
4. Figures out his own problems	☐	☐	☐	☐	☐
5. Loses his temper	☐	☐	☐	☐	☐
6. Gets his own way	☐	☐	☐	☐	☐
7. Gets along with teachers	☐	☐	☐	☐	☐
8. Does what he says he will do	☐	☐	☐	☐	☐
9. Thinks up good ideas	☐	☐	☐	☐	☐
10. Acts mean	☐	☐	☐	☐	☐
11. Gets along with students	☐	☐	☐	☐	☐
12. Gets upset easily	☐	☐	☐	☐	☐

1015

	Don't know				Very well
13. How well do you know this person?	☐	☐	☐	☐	☐

Copyright© Robert F. Peck, 1980

1974-75

BRS

This form was completed by: ______________________________

On this page you are thinking about: ________________________

Put an X in the box on each line that comes closest to telling how this person usually acts.

	Very Much 1	Some 2	3	Some 4	Very Much 5	
1. Looks for help	☐	☐	☐	☐	☐	Figures out his own problems
2. Loses his temper	☐	☐	☐	☐	☐	Keeps his temper
3. Does not push to get his own way.	☐	☐	☐	☐	☐	Gets his own way
4. Gets along with teachers	☐	☐	☐	☐	☐	Doesn't get along with teachers
5. Not dependable	☐	☐	☐	☐	☐	Dependable
6. Restless; can't keep still	☐	☐	☐	☐	☐	Quiet, calm
7. Thinks up good ideas	☐	☐	☐	☐	☐	Gets few ideas of his own
8. Unkind, mean	☐	☐	☐	☐	☐	Kind
9. Gets along with students	☐	☐	☐	☐	☐	Does not get along with students
10. Works hard	☐	☐	☐	☐	☐	Does not work hard
11. Gets upset easily or gets his feelings hurt	☐	☐	☐	☐	☐	Keeps cool, doesn't get upset easily

1975-76 (Pre)

Name ______________________________

Teacher ______________________________

Here are a set of statements. Some of them are true of you and so you will circle the Ⓣ. Some are not true of you and so you will circle the Ⓕ. Answer every question even if some are hard to decide, but do not circle both T and F.

SCHOOL SENTIMENT INDEX

F T 1. I feel good when I'm at school because it's fun.

F T 2. My teacher treats me the same as everyone else.

F T 3. I like trying to work hard puzzles.

F T 4. My teacher always tries to tell me when she is pleased with my work.

F T 5. My teacher gives me work that's too easy.

F T 6. I'm very happy when I'm at school.

F T 7. When my teacher punishes us she is fair about it.

F T 8. It would be nice if I never had to come back to school again after today.

F T 9. My teacher is not bossy.

F T 10. I don't do very much reading on my own.

F T 11. In my class, my teacher lets us plan many things together.

F T 12. The biggest reason I come to school is to learn.

F T 13. I like my teacher because he (she) is understanding when things go wrong.

F T 14. When my school work is hard I don't feel like doing it.

F T 15. My teacher doesn't want to hear the children's ideas on classroom rules.

F T 16. I often wish I were somebody who didn't have to go to school.

F T 17. My teacher cares about the feelings of the pupils in his (her) class.

F T 18. I would rather do almost anything else than study.

F T 19. My teacher tries to do things that the class enjoys.

F T 20. My teacher is usually unhappy in class.

F T 21. Almost everything I learn in school is dull.

F T 22. My teacher usually explains things too slowly.

F T 23. I don't care what scores I get on my schoolwork.

F T 24. My teacher would let the class plan an event alone.

F T 25. Most school days seem like they will never end.

F T 26. My teacher tries to make school interesting to me.

F T 27. My teacher doesn't understand me.

F T 28. I feel unhappy if I don't learn something new in school each day.

F T 29. My teacher is often too busy to help me when I need help.

F T 30. I'm afraid to tell my teacher when I don't understand something.

F T 31. Learning new things is not very much fun.

F T 32. When I do something wrong, my teacher corrects me without hurting my feelings.

F T 33. I don't like having to go to school.

F T 34. I don't like school because it's too much work.

F T 35. My teacher likes some children better than others.

F T 36. I'm scared of my teacher.

F T 37. It is hard for me to stay happy at school because I wish I could be somewhere else.

F T 38. My teacher gives me as many chances as other children to do special jobs in my classroom.

F T 39. My teacher does not care about me.

F T 40. I like to do my homework.

F T 41. My teacher tries very hard to help me understand hard schoolwork.

F T 42. I like school because there are so many fun things to do.

F T 43. My teacher doesn't explain things very well.

F T 44. Each morning I look forward to coming to school.

F T 45. My teacher tries to make sure I understand what she wants me to do.

F T 46. School is exciting.

F T 47, My teacher listens to what I have to say.

1018

1974-1975

SCHOOL SENTIMENT INDEX

Name________________________________ Date_________________________

Teacher_____________________________

Circle T for true for each sentence that is right for you, and F for false for each sentence that is not right for you.

F T 1. I feel good when I'm at school because it's fun.

F T 2. My teacher treats me fairly.

F T 3. I like trying to work difficult puzzles.

F T 4. My teacher always tries to tell me when she is pleased with my work.

F T 5. My teacher gives me work that's too easy.

F T 6. I'm very happy when I'm at school.

F T 7. When my teacher punishes us she is fair about it.

F T 8. It would be nice if I never had to come back to school again after today.

F T 9. My teacher is interested in the things I do outside of school.

F T 10. My teacher is not bossy.

F T 11. I don't do very much reading on my own.

F T 12. My teacher always knows what to do in class.

F T 13. I like to stay home from school.

F T 14. My teacher doesn't give very good tests.

F T 15. In my class, my teacher allows us to make many decisions together.

F T 16. The biggest reason I come to school is to learn.

F T 17. I like my teacher because he (she) is understanding when things go wrong.

F T 18. When my schoolwork is hard I don't feel like doing it.

F T 19. If I had a problem outside of school I could go to my teacher for help.

F T 20. My teacher doesn't want to hear the children's ideas on classroom rules and behavior.

F T 21. I often wish I was somebody who doesn't have to go to school.

F T 22. My teacher cares about the feelings of the pupils in his (her) class.

F T 23. I would rather do almost anything else than study.

F T 24. My teacher tries to do things that the class enjoys.

F T 25. My teacher is usually grouchy in class.

F T 26. Almost everything I learn in school is dull.

F T 27. My teacher usually explains things too slowly.

F T 28. I don't care what scores I get on my schoolwork.

F T 29. My teacher would let the class plan an event alone.

F T 30. Most school days seem like they will never end.

F T 31. My teacher tries to make school interesting to me.

F T 32. My teacher doesn't understand me.

F T 33. I feel unhappy if I don't learn something new in school each day.

F T 34. My teacher is often too busy to help me when I need help.

F T 35. I'm afraid to tell my teacher when I don't understand something.

F T 36. Learning new things is not very much fun.

F T 37. When I do something wrong, my teacher corrects me without hurting my feelings.

F T 38. I don't like having to go to school.

F T 39. My teacher grades me fairly.

F T 40. I don't like school because it's too much work.

F T 41. My teacher likes some children better than others.

F T 42. I'm scared of my teacher.

F T 43. It is hard for me to stay happy at school because I wish I could be somewhere else.

F T 44. My teacher gives me as many chances as other children to do special jobs in my classroom.

F T 45. My teacher does not care about me.

F T 46. I like to do my homework.

F T 47. My teacher grades too hard.

F T 48. My teacher tries very hard to help me understand hard schoolwork.

F T 49. I like school because there are so many fun things to do.

F T 50. My teacher doesn't explain things very well.

F T 51. Each morning I look forward to coming to school.

F T 52. My teacher tries to make sure I understand what she wants me to do.

F T 53. School is exciting.

F T 54. My teacher listens to what I have to say.

revised
1975-76

STUDENT EVALUATION OF TEACHING

Your Name ______________________________ Date ______________

Your Teacher's Name ______________________________________

YOUR TEACHER

Do you really notice how your teacher acts? Please mark the following sentences that are about your teacher. Your teacher will NOT see these answers. Check the box that tells whether your teacher acts the way the sentence says she (he) does.

	Yes	Sometimes	NO
1. This teacher is friendly toward students.	☐	☐	☐
2. This teacher knows a lot about the subject.	☐	☐	☐
3. This teacher is dull or boring.	☐	☐	☐
4. This teacher makes students work hard.	☐	☐	☐
5. This teacher asks for students' ideas before deciding what to do.	☐	☐	☐
6. This teacher is usually cheerful.	☐	☐	☐
7. This teacher makes learning more like fun than work.	☐	☐	☐
8. This teacher lets students get away with anything.	☐	☐	☐

Original
1974-75

STUDENT EVALUATION OF TEACHING
I-b (2-74)
D. J. Veldman and R. F. Peck

Your Name____Your Age__________

Your Teacher's Name____

YOUR TEACHER

Do you really notice how your teacher acts? Please mark the following sentences that are about your teacher. Your teacher will NOT see these answers. Tell if the sentences are true or false by circling the right letter in front of each sentence. The four choices mean:

F = Almost always false

f = Often false

t = Often true

T = Almost always true

This Teacher:

F f t T is always friendly toward students.

F f t T knows a lot about the subject.

F f t T is never dull or boring.

F f t T expects a lot from students.

F f t T asks for students' opinions before making decisions.

F f t T is usually cheerful and optimistic.

F f t T is not confused by unexpected questions.

F f t T makes learning more like fun than work.

F f t T doesn't let students get away with anything.

F f t T often gives students a choice in assignments.

74-75

TEACHER BIOGRAPHICAL FORM

1. Name____

2. Age____

3. Sex____

4. School____

5. Grade____

6. Home Address______________________________Zip__________

7. Telephone Number____

8. Spouse's Name____

9. Spouse's Occupation____

10. Number of Children____

11. Father's education____

Father's occupation____

12. Mother's education____

Mother's occupation____

13. Health: good average fair poor

14. Education Completed:____

15. Degrees earned: BA, BS, MA, Ph.D.

16. Major Subject: Educ., Eng., Math., Soc.St., Hist., Sci., Other________

17. Minor Subject: Educ., Eng., Math., Soc.St., Hist., Sci., Other________

18. Years of Teaching____

19. Grades Taught: Primary, Elementary, Jr.High School, High School

SELF ASSESSMENT

1. What do you consider to be your greatest strengths as a person. How do these relate to your effectiveness as a teacher?

2. What skills or aspects of your teaching would you especially like to improve?

3. What is the most important thing in your life today?

4. What are your plans for the future?

1974

CONFIDENTIAL

ADJECTIVE SELF DESCRIPTION

D. J. VELDMAN and G. V. C. PARKER

☐☐☐☐☐

NAME: ______________________________
(Please Print) Last First Middle or Maiden

SOC. SEC. NO.: ☐☐☐ ■ ☐☐ ■ ☐☐☐☐

DATE: ______________________

SEX: ☐ M ☐ F

LEVEL: ☐ E ☐ S

Circle **one** of the five numbers after each of the following descriptive words to represent how well each describes you. Try to describe yourself as you really are—not necessarily as you would like to be.

	NO				YES		NO				YES		NO				YES
1. anxious	1	2	3	4	5	20. kind	1	2	3	4	5	39. sharp-witted	1	2	3	4	5
2. charming	1	2	3	4	5	21. lazy	1	2	3	4	5	40. shy	1	2	3	4	5
3. cheerful	1	2	3	4	5	22. loud	1	2	3	4	5	41. silent	1	2	3	4	5
4. clever	1	2	3	4	5	23. moody	1	2	3	4	5	42. soft-hearted	1	2	3	4	5
5. complicated	1	2	3	4	5	24. nervous	1	2	3	4	5	43. sophisticated	1	2	3	4	5
6. efficient	1	2	3	4	5	25. obnoxious	1	2	3	4	5	44. spontaneous	1	2	3	4	5
7. emotional	1	2	3	4	5	26. organized	1	2	3	4	5	45. stable	1	2	3	4	5
8. foolish	1	2	3	4	5	27. outgoing	1	2	3	4	5	46. steady	1	2	3	4	5
9. gentle	1	2	3	4	5	28. pleasant	1	2	3	4	5	47. sympathetic	1	2	3	4	5
10. good-looking	1	2	3	4	5	29. polished	1	2	3	4	5	48. talkative	1	2	3	4	5
11. good-natured	1	2	3	4	5	30. practical	1	2	3	4	5	49. temperamental	1	2	3	4	5
12. handsome	1	2	3	4	5	31. precise	1	2	3	4	5	50. tense	1	2	3	4	5
13. idealistic	1	2	3	4	5	32. quiet	1	2	3	4	5	51. thorough	1	2	3	4	5
14. impulsive	1	2	3	4	5	33. reckless	1	2	3	4	5	52. timid	1	2	3	4	5
15. indifferent	1	2	3	4	5	34. reflective	1	2	3	4	5	53. touchy	1	2	3	4	5
16. individualistic	1	2	3	4	5	35. reserved	1	2	3	4	5	54. unconventional	1	2	3	4	5
17. industrious	1	2	3	4	5	36. rude	1	2	3	4	5	55. warm	1	2	3	4	5
18. insightful	1	2	3	4	5	37. sexy	1	2	3	4	5	56. worrying	1	2	3	4	5
19. irresponsible	1	2	3	4	5	38. shallow	1	2	3	4	5						
	NO				YES		NO				YES		NO				YES

1026

D-45

STUDENT DESCRIPTION

Please describe ____
by checking the appropriate box on each of the following scales. Use as a "yardstick" all of the children of this age you have known throughout your teaching career.

1. Apathetic	☐	☐	☐	☐	☐	☐	☐	Alert
2. Unhappy	☐	☐	☐	☐	☐	☐	☐	Happy
3. Obstructive	☐	☐	☐	☐	☐	☐	☐	Responsible
4. Unsure of self	☐	☐	☐	☐	☐	☐	☐	Confident
5. Dependent	☐	☐	☐	☐	☐	☐	☐	Self-Initiating
6. Seldom at work, in class	☐	☐	☐	☐	☐	☐	☐	Usually at work, in class
7. Learns by rote, seldom puts ideas together	☐	☐	☐	☐	☐	☐	☐	Thinks complexly, integrates ideas
8. Dislikes school	☐	☐	☐	☐	☐	☐	☐	Likes School
9. Shows a negative attitude toward teacher	☐	☐	☐	☐	☐	☐	☐	Shows a positive attitude toward teacher

Please go on to Page 2

Put an X in the box on each line that comes closest to telling how this person usually acts.

	Very Much	Some		Some	Very Much	
1. Outgoing	☐	☐	☐	☐	☐	Keeps to himself
2. Does not worry	☐	☐	☐	☐	☐	Worries
3. Looks for help	☐	☐	☐	☐	☐	Figures out his own problems
4. Loses his temper	☐	☐	☐	☐	☐	Keeps his temper
5. Does not push to get his own way	☐	☐	☐	☐	☐	Gets his own way
6. Gets along with teachers	☐	☐	☐	☐	☐	Doesn't get along with teachers
7. Not dependable	☐	☐	☐	☐	☐	Dependable
8. Restless, can't keep still	☐	☐	☐	☐	☐	Quiet, calm
9. Thinks up good ideas	☐	☐	☐	☐	☐	Gets few ideas of his own
10. Unkind, mean	☐	☐	☐	☐	☐	Kind
11. Gets along with students	☐	☐	☐	☐	☐	Does not get along with students
12. Works hard	☐	☐	☐	☐	☐	Does not work hard
13. Gets upset easily or gets his feeling's hurt	☐	☐	☐	☐	☐	Keeps cool, doesn't get upset easily

TLIS-'75

Concerns Questionnaire

Name ____

The purpose of this questionnaire is to determine what you are concerned about at various times as you adopt an innovation. The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various innovations to many years experience in using them. Therefore, some of the items may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please circle "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale, according to the explanation at the top of each of the following pages.

For example:

0 1 2 3 4 5 6 [✓ 7] This statement is very true of me at this time.
0 1 2 3 [✓ 4] 5 6 7 This statement is somewhat true of me now.
0 [✓ 1] 2 3 4 5 6 7 This statement is not at all true of me at this time.
[✓ 0] 1 2 3 4 5 6 7 This statement seems irrelevant to me.

Please respond to the items in terms of your present concerns about making use of the unit tests that accompany the basal readers you are using with your reading groups. Since this questionnaire is used for a variety of innovations, the phrase "unit reading tests" never appears. Phrases such as "the innovation," "this approach," all refer to your projected use of these "unit reading tests." Please respond to each item in terms of your present concerns about your involvement with this procedure.

Thank you for taking time to complete this task.

Copyright, 1974
Procedures for Adopting Educational Innovations/CBAM Project
R&D Center for Teacher Education, The University of Texas at Austin

0	1	2	3	4	5	6	7
Not true of me now			Somewhat true of me now			Very true of me now	

0 1 2 3 4 5 6 7 I am concerned about students' attitudes toward this innovation.

0 1 2 3 4 5 6 7 I now know of some other approaches that might work better.

0 1 2 3 4 5 6 7 I don't even know what the innovation is.

0 1 2 3 4 5 6 7 I am concerned about not having enough time to organize myself each day.

0 1 2 3 4 5 6 7 I would like to help other faculty in their use of the innovation.

0 1 2 3 4 5 6 7 I have a very limited knowledge about the innovation.

0 1 2 3 4 5 6 7 I would like to know the effect of the innovation on my professional status.

0 1 2 3 4 5 6 7 I am concerned about conflict between my interests and my responsibilities.

0 1 2 3 4 5 6 7 I am concerned about revising my use of the innovation.

0 1 2 3 4 5 6 7 I would like to develop working relationships with both our faculty and outside faculty using this innovation.

0 1 2 3 4 5 6 7 I am concerned about how the innovation affects students.

0 1 2 3 4 5 6 7 I am not concerned about this innovation.

0 1 2 3 4 5 6 7 I would like to know who will make the decisions about how the innovation will be used.

0 1 2 3 4 5 6 7 I would like to discuss the possibility of using the innovation.

0 1 2 3 4 5 6 7 I would like to know what resources are available if we decide to adopt this innovation.

0 1 2 3 4 5 6 7 I am concerned about my inability to manage all the innovation requires.

0 1 2 3 4 5 6 7 I would like to know how my teaching is supposed to change.

0 1 2 3 4 5 6 7 I would like to familiarize other departments or persons with the progress of this new approach.

Copyright, 1974
Procedures for Adopting Educational Innovations/CBAM Project
R&D Center for Teacher Education, The University of Texas at Austin

0 1 2 3 4 5 6 7
Not true of me now · Somewhat true of me now · Very true of me now

0 1 2 3 4 5 6 7 I am concerned about evaluating my impact on students.

0 1 2 3 4 5 6 7 I would like to revise the innovation's instructional use.

0 1 2 3 4 5 6 7 I am completely occupied with other things.

0 1 2 3 4 5 6 7 I would like to modify our use of the innovation based on th experiences of our students.

0 1 2 3 4 5 6 7 Although I don't know about this innovation, I am concerned about things in the area.

0 1 2 3 4 5 6 7 I would like to excite my students about their part in this approach.

0 1 2 3 4 5 6 7 I am concerned about time spent working with nonacademic problems related to this innovation.

0 1 2 3 4 5 6 7 I would like to know what the use of the innovation will require in the immediate future.

0 1 2 3 4 5 6 7 I would like to coordinate my effort with others to maximize the innovation's effects.

0 1 2 3 4 5 6 7 I would like to have more information on time and energy commitments required by this innovation.

0 1 2 3 4 5 6 7 I would like to know what other faculty are doing in this area.

0 1 2 3 4 5 6 7 At this time, I am not interested in learning about this innovation.

0 1 2 3 4 5 6 7 I would like to determine how to supplement, enhance or replace the innovation.

0 1 2 3 4 5 6 7 I would like to use feedback from students to change the innovation or its use.

0 1 2 3 4 5 6 7 I would like to know how my role will change when I am using the innovation.

0 1 2 3 4 5 6 7 Coordination of tasks and people is taking too much of my time.

0 1 2 3 4 5 6 7 I would like to know how this innovation is better than what we have now.

Copyright, 1974
Procedures for Adopting Educational Innovations/CBAM Project
R&D Center for Teacher Education, The University of Texas at Austin

PLEASE COMPLETE THE FOLLOWING:

1) In your present situation, how long have you used unit reading tests?

Never____ 1st year____ 2nd year____ 3rd year____ 4th year____ 5th year or more ___

2) In your use of unit tests, do you consider yourself to be a:

non-user___ novice ___ intermediate___ old hand ___ past user ___

3) During this academic year, have you received formal training concerning the use of unit tests (workshops, courses)?

yes _____ no_____

4) Are you currently in your 1st year of using some other innovation?

yes _____ no _____

If yes, please describe briefly:

February 10, 1976

Teacher Reaction Form

Please respond to these items and/or write any additional comments which would help us improve the observation process. Please return the form to the observer. You may fold and staple the sheet if you prefer that your comments remain confidential.

Circle the most appropriate choice.

A. The observations were conducted at convenient times.

Completely False	Mostly False	Partly False Partly true	Mostly True	Completely True
1	2	3	4	5

Comments:

B. The classroom situations observed were representative of the normal activities of my class.

Completely False	Mostly False	Partly False Partly true	Mostly True	Completely True
1	2	3	4	5

Comments:

C. The classroom observer did not detract from the classroom activities nor the effectiveness of instructional activities.

Completely False	Mostly False	Partly False Partly true	Mostly True	Compltely True
1	2	3	4	5

Comments:

Other comments concerning the observation:

November 1975

Class Checklist

Check the box which most applies to your homeroom group this year, as compared to last year:

They are:	More	Less	About the Same
1. Interesting to me			
2. Interested in classwork			
3. Responsible abt. classwork			
4. Physically mature			
5. Socially mature			
6. Emotionally mature			
7. Disruptive in class			
8. Cooperative in groups			
9. Capable of indep. work			
10. Comfortable with school situation			

Check the box which most applies to your reading class this year, as compared to your homeroom last year:

They are:	More	Less	About the Same
1. Interesting to me			
2. Interested in classwork			
3. Responsible abt. classwork			
4. Physically mature			
5. Socially mature			
6. Emotionally mature			
7. Disruptive in class			
8. Cooperative in groups			
9. Capable of indep. work			
10. Comfortable with school situation			

APPENDIX E

ANNOTATED BIBLIOGRAPHIES

ANNOTATED REFERENCE LIST

Coping File - Peck

Adelson, J., & Redmond, J. Personality differences in the capacity for verbal recall. *Journal of Abnormal and Social Psychology*, 1958, *57*, 244-248. This article discusses the results of an experiment to find the differences between "anal retentives" and "anal expulsives" in their capacity for verbal recall. The Blacky Test was used to determine the type of anal fixation: the subjects, a group of Bennington freshmen, were given an "innocuous" and a "disturbing" passage to read and asked to recall it later. The authors conclude that, under certain conditions, "anal retentive" individuals have a greater ability to recall verbal material than "anal expulsive" individuals.

Alker, H. A. Coping, defense and socially desirable responses. *Psychological Reports*, 1968, *22*(3), 985-988.
Two main questions are answered by this study: 1) are inventory responses indicative of coping behavior correlative to socially desirable responses; and 2) are responses assessed as defensive socially undesirable? A section on method describes data sets for testing, measuring, and control. Results show that the answer to the above questions is yes. The author concludes that socially desirable responses in a broadly sampled normal population will generally indicate the presence of socially desirable behavior.

Amidon, E., & Giammatteo, M. The verbal behavior of superior teachers. *The Elementary School Journal*, 1965, *65*(5), 283-285.
The study involved 153 elementary school teachers from Pennsylvania and explored the question: are certain patterns of verbal behavior characteristic of superior teachers? The results indicate that the verbal behavior patterns of superior teachers differ markedly from those of average teachers in being more accepting of student ideas and less dominating of the classroom in length of time spent speaking and indirectiveness of that speech.

Amidon, E., & Simon, A. Teacher-pupil interaction. *Review of Educational Research*, 1965, *35*(2), 130-139.
Reviewed are studies that utilized observational data to measure the overt behavior of pupils and teachers as they interact. Systems used to collect and categorize this behavior are described and followed by a summary of research on various interaction; various teaching patterns, student achievement, climate, perception, personality and teacher education. The authors conclude by stating that there appears to be definite patterns of teacher-pupil interaction which could be objectively observed and categorized.

Atkinson, J. W. Motivational determinants of risk-taking behavior. *Psychological Review*, 1957, *64*(6), 359-369.
This paper concerns two problems of behavior which any theory of motivation must come to grips with: to account for an individual's selection of one path of action among a set of possible alternatives, and to account for the amplitude or vigor of the action tendency to persist for a time in a given direction. In treating these two problems the paper focuses on the relationship of achievement motivation to risk-taking behavior. A model is described which incorporates a theory of motivation, and actual test results are discussed. The multifaceted effects of success and failure on motivation of subjects are fully explored.

Ausubel, D. P., Schiff, H. M., & Gasser, E. B. A preliminary study of developmental trends in sociempathy: Accuracy of perception of own and others' sociometric status. *Child Development*, 1952, *23*(2), 111-128.
This preliminary study of the development of sociempathic ability (perception of own and others' sociometric status) surveys previous discussions of the problem before examining data gathered from children from grade levels 3-12. Results show a high positive correlation between measures of actual and projected sociometric status and a trend, though without conclusive evidence, toward increased sociempathic ability with increased age.

Baker, J. W., & Holzworth, A. Social histories of successful and unsuccessful children. *Child Development*, 1961, *32*(1), 135-149.
The social histories of children in a state mental hospital and of successful children in a matched control group are statistically analyzed and compared in this paper. A total of 142 children, ages 13-16, were used in the study. Of the 83 items in the histories that were statistically analyzed, 52 were significant at or beyond the 5% level. Some traditionally held theories were confirmed while others were refuted or questioned by the findings of the study.

Baldwin, C. P. Naturalistic studies of classroom learning. *Review of Educational Research*, 1965, *35*(2), 107-113.
Surveyed are recent studies that have made contributions to methodology or terminology and have yielded important findings in the area of using naturalistic observation for studying the behavior of children and their teachers. Though similar observational categories are utilized, even by researchers investigating diverse questions, no clear relation is seen between descriptions of teaching behavior and measures of the outcome of the educational process. The article concludes by enjoining an effort to make this relationship explicit.

Baldwin, J. W. Troubled child, troubled family. *The Elementary School Journal*, 1968, *68*(4), 172-179.
This article is concerned with establishing the value of assessing family communication in order to understand and more effectively treat the behavior of the disturbed pupil. The author discredits the traditional clinical model of focussing only on the child and explores how the child's relationship with his family is responsible for the child's extra-family relations.

Bardon, J. I., & Bennett, V. D. C. When teaching does not take. *The Elementary School Journal*, 1966, *66*(8), 426-431.

Problems of reaching the individual child who does not repond to the standard procedures used in classroom teaching is the main concern of the authors. Discussed are the uses a student gives to show he is not understanding and also the responses a teacher can make. In conclusion, the authors state that a truly sensitive and mature teacher will accept the idea that certain approaches or attitudes may be failing with certain pupils and will be willing to try other methods or seek outside help when it is appropriate.

Barnes, M. J. Will they outgrow it? *PTA Magazine*, 1963, *58*(2), 8-10.
Often giving specific examples of delayed development in children, the author suggests that parents seek professional help instead of hoping the child will outgrow the problem.

Baron, D. Personal-social characteristics and classroom social status: A sociometric study of fifth and sixth grade girls. *Sociometry*, 1951, *14*(1), 32-42.
Investigated is a design to define personal-social characteristics which differentiate girls of high, average or low status at fifth and sixth grade levels. Significant associations are found between social status, self-concept and emotionality with the greatest number of "unfavorable" responses being associated with low status and the average status girls sharing characteristics of the lower rather than the higher status girls.

Bedoian, V. H. Mental health analysis of socially over-accepted, socially under-accepted, overage and underage pupils in the sixth grade. *Journal of Educational Psychology*, 1953, *44*(6), 366-371.
This paper is concerned with mental health problems of children and how these problems might be related to social acceptance and social rejection. The criteria for establishing mental health, overage, underage, over-accepted, and under-accepted children is explained. Results show that underage and at-age children score better mental health scores than over-age; socially over-accepted score better than under-accepted.

Berlyne, D. E. A theory of human curiosity. *British Journal of Psychology*, 1954, *45*, 180-191.
Man's motivation for the acquisition of knowledge is the focal point of this article. A distinction is made between man's curiosity which leads to increased perception of stimuli (perceptual curiosity) and his desire for cognitive knowledge (epistemic curiosity). An analysis of epistemic curiosity with much reference to past studies of numberous researchers accompanies the article. The hypothesis is made that drive is aroused by questioning and is a form of epistemic curiosity. Similarly, drive produced by conflict can be called drive to know or epistemic curiosity if it is reduced by the process of knowledge-rehearsal.

Berlyne, D. E. The present status of research on exploratory and related behavior. 1958.
Reviewed is research on responses directed to stimuli that have no immediate bearing on survival, a form of behavior neglected by researchers until recent years. The author concludes by suggesting areas that might profitably be investigated in the future.

Bildfell, G., & Douglas, V. I. Children's responses to aggression a developmental study. The Canadian Psychologist, 1965, 6A(2), 173-179.
The recorded study was designed to investigate developmental trends in several different types of response made by children to aggressive acts from peers. A description of the methodology, testing, and scoring preceeds a result section which reveals that younger boys deal with aggressive threats by withdrawing, boys up to 9 years of age react in a more physically aggressive manner, and older boys replace physical aggression with verbal techniques. The author discusses the possibility of developing the test as a diagnostic technique.

Blain, D. Unhealthy emotional development and its relationship to school learning. California Journal of Elementary Education, 1962, 31(1), 25-29.
What effects do unhealthy emotions have on school performance? Positive attitudes and healthy emotional response must be associated with learning in order to insure good mental health and effective education, because emotional disturbances from many sources are shown to block the learning process. The author concludes that attempts at intellectual refinement may be futile if the emotional development is not healthy.

Blaker, K. E., & Bennett, R. W. Behavioral counseling for elementary school children. The Elementary School Journal, 1970, 70(8), 411-417.
The article gives practical, classroom-useful examples of the implementation of behavior modification and reinforcement theory. The author concludes that the techniques described vary in effectiveness with the creativeness of the person giving rewards and with the attitude of the teacher.

Block, J., & Turula, E. Identification, ego control, and adjustment. Child Development, 1963, 34(4), 945-953.
The author investigates parental influence upon personality formation and the role of identification in determining the mode of adjustment in which an individual stabilizes. Concluding that this experiment gives strong support to the hypotheses that degree of identification is positively related to the degree of ego control, and that little encouragement is given to the hypothesis that degree of identification is positively related to the degree of ego resiliancy, the author proposes that further research should be done to explore these relationships.

Blum, A. M. The differentation of family strife and their relation to classroom behavior. Dissertation Abstracts International, 1970, 31(6), 3699-3700-B. (Abstract)

Bonney, M. E. Assessment of efforts to aid socially isolated elementary school pupils. The Journal of Educational Research, 1971, 64(8), 359-364.
The findings of this research suggest that much of the advice given to teachers and prospective teacher on how to help socially maladjusted pupils is naive and based on faulty assumptions. The primary difficulty encountered in trying to socialize low-status students is that their contributions are not evaluated objectively on their merits.

Bonney, M. E., & Nicholson, E. L. Comparative social adjustments of elementary school pupils with and without preschool training. Child Development, 1958, 29, 125-133.
This paper evaluates the effect of nursery school and kindergarten experiences on students' classroom social adjustments in elementary school.

Three different studies are presented and discussed. The authors state that because of the persistence of personal-social inadequacy, educators must not have blind faith in curative socialization but should be critical of their programs, seeing to it that they help the maladjusted rather than simply perpetuate an existing social hierarchy.

Brooks, R., Brandt, L., & Wiener, M. Differential response to two communication channels: Socioeconomic class differences in response to verbal reinforcers communicated with and without tonal inflection. Child Development, 1969, 40(2), 453-470.
Discussed in this paper are two studies which explore the general hypothesis that children from middle and low socioeconomic backgrounds differ in their response to verbal social reinforcers said with inflection and with non-inflection. The two research studies are fully explained and the results are presented and discussed. Results indicate that middle socioeconomic class children, in contrast to low socioeconomic class children, respond equivalently to positive and negative reinforcers said with a congruent or non-inflective tone. For these same conditions, low socioeconomic class children respond only to the inflected items and more to positive words said with a positive tone than to negative words said with a negative tone.

Brophy, J. E., & Evertson, C. M. Teacher behavior and student learning in second and third grades. Report No. 75-4, Austin, Texas: The University of Texas, Research and Development Center for Teacher Education, 1975.
Presented is process-product research of teaching effectiveness. Controls and validity of measures taken are established, and results reported indicate significant findings in several areas. In general, the authors' results indicate that differences in kind of effective behavior were found over SES classes with those correlates of high achievement in a high SES school rarely being the same or relevant to the same degree for low SES schools. Teacher variables important for learning in high SES and low SES schools are discussed.

Brown, B. B. Bringing philosophy into the study of teacher effectiveness. The Journal of Teacher Education, 1966, 17(1), 35-40.
Most research efforts have failed to yield meaningful criteria for measuring teacher effectiveness, and the idea is proposed that a philosophical framework would provide the means of looking at teachers' classroom practices in correspondence to value positions regarding what is good. Dewey's experimentalism is presented and revealed to be a means of making logical connections between value judgments and observable facts. The author concludes that these experimental measures enable researchers to explore more adequately the relative positions of the judge and the teacher and the possible relationships and interactions effecting judgments of the Teacher's effectiveness.

Brown, D. G. Behavior modification with children. Mental Hygiene, 1972, 56(1), 22-30.
The prediction that developments in behavior modification will also have significant effects in treatment, training, research, and prevention in mental health are explored. Kinds of behavioral conditioning, the history of behavioral conditioning, and criticisms of behavioral conditioning are discussed. The authors conclude that recent, current, and continuing

developments in behavior modification will bring about substantial advancements in therapeutic work with children.

Burck, H. D., & Reardon, R. C. Individual differences and learning efficiency: A re-examination and a re-emphasis. *Contemporary Education*, 1970, *41*(3), 119-122.
Re-examined are the traditional beliefs in the existence and the value of individual differences, but the authors propose that beliefs not be made a rationale for poor instruction. The teacher should, it is argued, accept more responsibility for learning failures and be willing to change methods and become emotional about learning.

Burke, L. L. Coping effectiveness as a function of the social environment. *Dissertation Abstracts International*, 1969, *29*(10), 3455-A. (Abstract)

Butler, R. A. Exploratory and related behavior: A new trend in animal research. *Journal of Individual Psychology*, 1958-1959, *8*(2), 111-120.
Exploration of motivating conditions other than the biological drives is a new trend in animal behavior. Experiments on rats, monkeys, and chimpanzees are discussed, and implications for man are touched upon. The author suggests that a comparative approach which emphasizes the rewards derived from continuous interchanges with the environment should provide valuable information on the motivational basis of behavior.

Carpenter, J. R. Role reversal in the classroom. *Group Psychotherapy*, 1968, *21*(2-3), 155-167.
This study explores the use of role reversal as a means of resolving conflicts and promoting understanding among third-grade children. Methodology involved playing out the given situation, with students acting out first their own roles, then those of the others involved in the original dispute. Results were evaluated by the use of sociograms at the beginning and end of the study.

Castaneda, A., McCandless, B. R., & Palermo, D. S. The children's form of the manifest anxiety scales. *Child Development*, 1956, *27*(3), 317-326.
Described is a 42-item anxiety scale and an 11-item L-scale for use with fourth, fifth, and sixth grade children from Taylor's adult scale of manifest anxiety. Results showed that girls received higher scores on both scales and that sixth graders scored lower in the L-scale. The general form of distribution was comparable to that which Taylor obtained from 1900 college students on the adult form of the scale.

Castaneda, A., Palermo, D. S., & McCandless, B. R. Complex learning and performance as a function of anxiety in children and task difficulty. *Child Development*, 1956, *27*(3), 327-337.
Explored is the relationship between the performance of fifth grade children on complex learning tasks, the relative difficulty of the tasks, and the children's scores on a scale of manifest anxiety adapted for children from Taylor's adult form. Empirical data showed the performance of high- and low-anxiety students differed according to task difficulty: the performance of high-anxious children on complex tasks was inferior to that of the low-anxious children; high-anxious children's performance on less difficult tasks was superior.

Chodoff, P., Friedman, S. B., & Hamburg, D. A. Stress, defenses, and coping behavior: Observations in parents of children with malignant disease. *American Journal of Psychiatry*, 1964, *120*(8), 743-749.
This paper describes the adaptational behavior and coping strategies employed by 46 parents of fatally-ill children at the clinical center of the NIH. The authors attempt to discern outlines of a "natural history" of adaptation to news of the forthcoming death. Stages of mourning such as "anticipatory mourning" are described, as are the various adaptive defense mechanisms of the parents: isolation of affect, denial, and motor activity.

Cianciolo, P. J. Childrens' literature can effect coping behavior. *Personnel and Guidance Journal*, 1965, *43*(9), 897-903.
The author maintains that books can be a source of psychological relief from the pressures of childhood, suggesting methods of bibliotherapy that through identification, catharsis, and insight help children solve their problems by showing them experiences which vicariously enact their own. The author advises selection of books to be made on literary quality as well as relevant content and argues that greatest benefits come when reading is followed by discussion. An annotated bibliography is included.

Clark, M. Children in the dark. *PTA Magazine*, 1961, *55*(9), 10-13.
Since the reported number of child and adolescent suicides is quite high, the author states that adults working with children and adolescents must learn how to spot and deal with, long in advance, the conflicts in and stresses on an individual that may lead him to attempt suicide. The personal attributes of suicides and some warning signals to watch for are discussed. Suggestions are given concerning broad preventive measures that can be incorporated by all parents, teachers, and others who have contact with youth.

Clifford, M. M. Children's perception of their academic ability and achievement accountability. Final report. Grant No. OEG-6-70-0043(508), Iowa City, Iowa: Iowa University, 1971. (ERIC ED 056 350.)(Abstract)

Coelho, G. V. Silber, E., & Hamburg, D. A. Use of the student - TAT to assess coping behavior in hospitalized normal and exceptionally competent college freshmen. *Perceptual and Motor Skills*, 1962, *14*(3), 355-365.
The coping behavior of three previously differentiated groups of college freshmen of exceptional, normal, and disturbed levels of adaptation was measured by a student - TAT consisting of slides of ambiguous college situations for which stories were to be produced. Empirical results were based on two indices of coping behavior: Optimism index (favorableness/solution), and effectance index (favorableness/activity). Findings supported the hypothesis that the major problems of freshmen relate to final exams, intimacy, autonomy from parents, and solitude.

Coelho, G. V., Solomon, F., Wolff, C., Steinberg, A., & Hamburg, D. A. Predicting coping behavior in college: A prospective use of the student - TAT. *Journal of Nervous and Mental Disease*, 1969, *119*(5), 386-397.
The student - TAT (Thematic Apperception Test) in the form of eleven selected college scenes projected on a screen to which story responses were elicited was administered to 347 freshmen in a test for dropout vulnerability and competence. Stories were rated for solutions, hero activity and favorableness of outcome. Results showed that TAT measures correlated with the

follow-up interview evaluations of coping behavior and differentiated those who dropped out and those who remained in college.

Cowen, E. L. Coping with school adaptation problems. Psychology in the Schools, 1971, 8(4), 322-329.
Because early school maladaptation can be critical to later life adjustment, this article suggests more effective means of dealing with it than is the general practice. Stratagems proposed emphasize school environments engineered for learning and adaptation, early detection of problems, strengthening helping resources, and minimizing disruption in and separation from the child's natural environment.

Cowen, E. L., Dorr, D. A., Trost, M. A., & Isso, L. D. Follow-up study of maladapting school children seen by nonprofessionals. Journal of Consulting and Clinical Psychology, 1972, 39(2), 235-238.
This follow-up study was designed to determine whether children, seen by nonprofessional child aides for school maladaptation problems, maintained gains after two to five years. Results show that enduring positive effects were produced in areas ranging from the educational to the interpersonal.

Cowen, E. L., Zax, M., Isso, L. D., & Trost, M. A. Prevention of emotional disorders in the school setting: A further investigation. Journal of Consulting Psychology, 1966, 30(5), 381-387.
In this article, a comprehensive program for the prevention and early detection of emotional disorders is described as it was applied to primary grade students over a three-year period. Results showed that the program was effective and that children identified as having potential emotional problems were performing more satisfactorily by the end of the three-year period. The author urges a preventively oriented, community-based approach to mental health problems.

Crandall, V. C. Personality characteristics and social and achievement behaviors associated with children's social desirability response tendencies. Journal of Personality and Social Psychology, 1966, 4(5), 477-486.
The purpose of this report is to examine further the correlates of social desirability response tendencies in children of elementary and high school ages. Two studies designed to provide data on these correlates are described. Results present a personality and behavioral picture of the high social desirable child much like that of the adult who evidences strong social desirability response tendencies on the Marlow-Crowne scale.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's beliefs in their own control of reinforcements in intellectual academic achievement situations. Child Development, 1965, 36(1), 91-109.
A scale for assessing children's beliefs that they are usually able to influence the outcome of situations, especially intellectual-academic successes and failures is developed by the authors. The research involved administration of the Intellectual Achievement Responsibility Questionnaire to 923 elementary and high school children. The results show that the scale predicts differently for the two sexes at different age levels. Specific and general conclusions are discussed.

Dallas, J. Bridging the gap: A transitional program for pupils entering junior high. *The Clearing House*, 1973, *47*(8), 490-492.
The traditional "sink or swim", attitude towards incoming junior high students was done away with in this experimental program. The students were given experience in making elective choices in relation to their courses, and treated in a more humane way, to build self image. To give students an overview of all elective offerings, this program set up exploratory courses which were taught seminar fashion, with no grades. The outcome was productive and helpful for both students and staff.

Della Piana, G. M., & Gage, N. L. Pupils' values and the validity of the Minnesota Teacher Attitude Inventory. *Journal of Educational Psychology*, 1955, *46*(3), 167-178.
According to the values of the pupils interacting with the teacher, this study indicates that the MTAI will vary predictably in validity. MTAI scores of teachers correlate more highly with how much they are liked by the pupils in cases where the pupils have stronger affective values. If pupils have strong cognitive values, the teachers' MTAI will make less difference.

Dias-Guerrero, R., & Peck, R. F. Estilo de confrontacion 7 aprovechamiento. Un programo de investigacion. *Interamerican Journal of Psychology*, 1967, *1*(2), 127-136. (Abstract)

Domhoff, B. But what sort of thing is a coping mechanism? *Psychological Reports*, 1965, *16*(1), 234. (Abstract)

Duncan, C. P. Recent research on human problem solving. *Psychological Bulletin*, 1959, *56*(6), 397-429.
This review summarizes most studies on human problem solving that were published from 1946 to 1957. It covers only experimental and theoretical studies that deal with the problem solving performances of normal human adults. Numerous studies are cited, and a concluding section points out major concerns of the author.

Dustin, D. S. Member coping with group success and failure. *Dissertation Abstracts International*, 1963, *24*(6), 2603. (Abstract)

Epps, E. G. Interpersonal relations and motivation: Implications for teachers of disadvantaged children. *The Journal of Negro Education*, 1970, *39*(1), 14-25.
Discussed is the relationship between interpersonal relationships and the development of personality characteristics that lead to academic success or failure. Achievement motivation is seen as a function of family background, social class, and previous educational experience. Degree of self-esteem, level of anxiety, and a sense of adequacy or powerlessness--all important in school performance--are seen as determined by the above mentioned interpersonal factors. Implications for education are considered and recommendations for teachers are presented.

Fellner, I. W. When children are disturbed. The Elementary School Journal, 1961, 61(5), 254-259.
The author stresses the importance of school experience as a major factor effecting a child's adjustment to life. Suggestions are made for teachers and mental health teams working with disturbed children.

Fey, W. F. Correlates of certain subjective attitudes toward self and others. Journal of Clinical Psychology, 1957, 13(1), 44-49.
Examined are the relationships existing among expressed attitudes of acceptance of self and acceptance of others and the following measures: the F scale, Edwards Personal Preference Schedule, and ratings of perceived and ideal selves. Findings are thought to confirm the hypothesis that certain combinations of expressed attitudes permit the inference of other, less obvious personal qualities.

Flanagan, J. C. The Plan System for individualizing education. East Lansing, Michigan: Michigan State University, Office of Evaluation Services, National Council on Measurement in Education, 1971. (ERIC ED 051 296.) (Abstract)

Forward, J. R. Factors inhibiting the transfer of control in educational settings. Final report. Grant No. OEG-8-71-0019(508), Boulder, Colorado: Colorado University, Department of Psychology, 1973. (ERIC ED 085 342.) (Abstract)

Foster, H. L. A pilot study of the cant of the disadvantaged, socially maladjusted secondary school child. Urban Education, 1966, 2(2), 99-114.
The purpose of this study was to test the hypotheses that the disadvantaged have a particular cant or language distinct from standard English, that sometimes words and meanings differ from school to school, and that many words have dual meanings. The subjects consisted of 44 boys in lower SES schools in New York--one junior high and one senior high each in Brooklyn and Manhattan. Most subjects were Negro and there were no whites. The researchers compiled a word list by taping interviews with the subjects. An examination of the data substantiates the hypotheses.

Foster, H. L. Classroom practices for the child under stress. Exceptional Children, 1966, 32(9), 639-640.
Two practices designed to provide an outlet for children's stress are described. "Grit day" provides sharing of food with the children gradually assuming more responsibility. The "cool table" is a table provided with various materials where anyone may go when he wishes for as long as he needs, the only stipulation being that he may not interact with others while there.

Friedman, S., & Vietze, P. M. The competent infant. Peabody Journal of Education, 1972, 49(4), 314-322.
The competent infant is one who is sensitive to his environment and capable of modifying and being modified by that environment. This article stresses the need for an optimal environment for the child, one that provides potential for development by the child's actively reacting and changing it. This everyday experience provides the infant with a data base which enables him to further reach out, explore, create, and understand.

Fullan, M., & Loubser, J. J. Education and adaptive capacity. Sociology of Education, 1972, 45(3), 271-287.
Three major concerns of the authors are discussed in this article: 1) to map out conceptually some of the major dimensions of adaptive capacity, drawing in a wide range of sociological and psychological literature; 2) to indicate how education may be related to an individual's adaptive capacity; 3) to extend the argument to consider the adaptive functioning of social systems. Although the paper is largely devoted to a review of related literature, the authors conclude by calling for more variation in educational innovation in order to contribute to individual and social system adaptive capacity.

Gage, N. L., & Suci, G. Social perception and teacher-pupil relationships. Journal of Educational Psychology, 1951, 42, 144-152.
The hypothesis that accuracy of social perception is positively related to effectiveness of interpersonal relations is tested in this article. Teachers were asked to predict the percentage of students who would answer "yes" to items eliciting opinions on various aspects of the school. Results are reported and are shown to support the hypothesis.

Galloway, C. Nonverbal communication. Theory Into Practice, 1968, 7(5), 172-175.
The role of nonverbal communication by teachers in the classroom is discussed in a positive light. The author cites numerous advantages of teacher's using nonverbal communication: controlling student behavior, influencing students, and eliciting a particular student reaction. He encourages greater teacher training in nonverbal communication.

Galloway, C. M. Teacher nonverbal communication. Educational Leadership, 1966, 24(1), 55-63.
Information given in this study reveals that teachers differ in their ability and inclination to be encouraging or inhibiting in their communicative contacts with pupils. The author suggests that many times the nonverbal element modifies the verbal message and it is especially important for teachers of disadvantaged students to be aware of nonverbal communication.

Gardner, A. E. Aggression and violence--the enemies of precision learning in children. American Journal of Psychiatry, 1971, 128(4), 445-450.
Threats in the environment are shown to be the origin of anxiety and fear of aggression in deprived children and the overload quantity of these threats differentiate the deprived child from other children. Various defences utilized by the child against his fears are demonstrated to be the elements of the neurotically determined learning disability, the type of defense being related to the type of learning disability.

Gardner, W. I. Social and emotional adjustment of mildly retarded children and adolescents: Critical review. Exceptional Children, 1966, 33(2), 97-105.
Research data concerning social and emotional adjustment characteristics of mildly retarded children and adolescents are reviewed. Contrary to a number of statements appearing in various texts and review articles, little is known about the kinds and frequency of occurrence of behavior adjustment problems among the mildly retarded. In addition, there is no suitable evidence to indicate that the adjustment level of special class children is superior to that of retarded children attending regular classes.

Garland, L. M. Behavior modification: An issue for the teacher. Paper presented at the Doctoral Seminar, University of Georgia, 1972. (ERIC ED 075 475.) (Abstract)

Gelatt, H. B. Early guidance essential. Education, 1963, 83(5), 263-265. The author clearly emphasizes the importance of guidance programs and services at the school level to insure that each child has a variety of appropriate educational experiences and that he develops and uses his intellectual potential. The benefits of early adjustment to school are explored and supported by the author.

Getzels, J. W., & Jackson, R. W. Family environment and cognitive style: A study of the source of highly intelligent and of highly creative adolescents. In Mooney, & Razik (Eds.) Explorations in Creativity. New York: Harper, 1967. Based on a study of highly intelligent and highly creative groups of adolescents this report examines how they differ in levels of achievement, patterns of interpersonal relations, kinds of career aspirations, and family environments.

Getzels, J. W., & Jackson, P. W. The highly intelligent and the highly creative adolescent: A summary of some research findings. In Taylor, & Barron, Scientific Creativity. New York: Wiley, 1963. The highly intelligent versus the highly creative adolescent is the main concern of the authors. Some of the data gained from the experimental groups were analyzed to answer specific questions. The results indicated that the achievement scores of both groups were superior to the scores of the school population as a whole. The high IQ group was rated as more desirable than the average student by teachers; the high creative group was not. Other analyses revealed the relationship of personal qualities and career aspirations to both groups.

Goodstein, L. D. Interrelationships among several measures of anxiety and hostility. Journal of Consulting Psychology, 1954, 18(1), 35-39. Compared in this article are scores from the Taylor Manifest Anxiety Scale and two other instruments, the Elizur Rorschach Content Test and the Iowa Multiple-Choice Picture Interpretation Test. Results indicate that these tests do not measure the same variable.

Gotts, E. E. Levels of school anxiety in relation to child personality variables in school. Psychology in the Schools, 1968, 5(3), 217-222. Using the Leary-Coffey personality model, 500 fifth grade children were evaluated to see whether school anxiety is systematically related to the L-C categories. High anxious children were found to be more blunt, distrustful, skeptical, aggressive, competitive, and exploitative. Sex differences were significant but socioethnic differences were not. Further, school anxiety was associated positively with negative personal characteristics.

Gotts, E. E., Adams, R. L., & Phillips, B. N. Personality classification of discrete pupil behaviors. Journal of School Psychology, 1968, 7(3), 54-63. The problem of classifying teachers' discrete observations of pupil behaviors by utilizing the circumplex classification system conceptualized by Leary and Coffey is solved in this study. Use of the model is demonstrated in a study of 468 fifth-grade students from socio-ethnically diverse schools.

Grice, G. R. Discrimination reaction time as a function of anxiety and intelligence. *Journal of Abnormal Social Psychology*, 1955, *50*, 71-74.
This article relates to a study of the relation between habit interference and motivation as measured by a scale of "manifest anxiety." Interpretation of the findings are complex, and an important question was raised when it was discovered that subjects designated by the scale as differing in anxiety, also differed in intellectual ability.

Grossman, E. K. Effects of anxiety on task performance. *Dissertation Abstracts International*, 1971, *31*(7), 4337-B. (Abstract)

Grubb, R. D. The relationship between reported adjustment and disparities between mental age and educational grade placement in elementary school children. *Psychology in the Schools*, 1971, *8*(2), 110-114.
The relationship between children's grade placement and learning potential is the main focus of this report. Mental ages taken from standardized group intelligence tests were used as a measure of the child's learning potential. The method employed was designed to test the hypothesis that the greater the difference between children's learning potential and their grade placement, the greater would be the frequencies of teacher-reported maladaptive behaviors. Results confirm the hypothesis.

Guerney, B. G., Jr., Shapiro, E. B., & Stover, L. Parental perceptions of maladjusted children: Agreement between parents, and relation to mother-child interaction. *The Journal of Genetic Psychology*, 1968, *113*(2), 215-225.
Tested is the hypothesis that parents would agree to a moderate extent on descriptions of their children on the checklist types of measure. Interparent agreement in perception of emotionally disturbed children was measured from a problem list and interpersonal checklist. The hypothesis was confirmed in this study, and it was found that mothers' perceptions consistently correlated more highly with session behavior than did fathers.

Haan, N. A tripartite model of ego functioning values and clinical and research applications. *The Journal of Nervous and Mental Disease*, 1969, *148*(1), 14-30.
A model of ego functioning values and various clinical and research applications of the model are presented in this paper. The model is continually shown to be superior to previously existing models through detailed and documented descriptions. The author concludes that in an application of this model, the focus it provides on ego operations emphasizes the quality of process and that the effectiveness of this focus proves its vital use.

Haan, N. Proposed model of ego functioning: Coping and defense mechanisms in relationship to IQ change. *Psychological Monographs*, 1963, *77*(8), 1-23.
Described is a model of ego functioning that includes both coping and defense mechanisms. The use of this model is demonstrated in a study that reports the relationships of ego functioning to absolute intelligence and to IQ change from early adolescence to middle adulthood. Processes of ego mechanisms and measures of these mechanisms are explained, and a lengthy section on results of these measures collected in the study is presented. The general results suggest that coping is related to, and leads to IQ

acceleration and defense to IQ deceleration.

Haan, N. The relationship of ego functioning and intelligence to social status and social mobility. Journal of Abnormal and Social Psychology, 1963, 69(6), 594-605.
Presented is a study of the relationship of social structure and personality functioning to ego functioning and intelligence. The method for the study, criteria of measurements, and results of experimentation are all clearly recorded. Generally, results show that early social status has a relatively minor effect on adult ego functioning, and adult ego functioning is associated in consistent ways with adult status and achieved mobility. The author concludes that ego functioning does function in achievement of adult status.

Haggard, E. A. Socialization, personality, and academic achievement in gifted children. The School Review, 1957, 65(4), 388-414.
The article describes a study of socialization, personality, and mental processes of 76 children over a 7 year period. The program and procedure of the research is extensively detailed. The findings drawn from the study are numerous and varied, and generally conclude that as a child matures, he learns to respond to himself and to his environment in characteristic ways.

Hallowitz, D. The teacher and the emotionally disturbed child. The Elementary School Journal, 1964, 65(1), 33-37.
The learning problems of the emotionally disturbed child, and teacher abilities to effectively help these children are the main concerns of the author. Stressed is the need for teachers to be able to identify these children, realize the source of their problem, and develop a relationship with the child that will enable him to overcome his instability and free him to pursue learning tasks.

Hamburg, D. A., & Adams, J. E. A perspective on coping behavior. Archives of General Psychiatry, 1967, 17, 277-284.
Coping studies from the vantage point of seeking and utilizing information under stressful conditions are presented by the authors. Studies of severally injured patients, parents of fatally ill children, and youth in major psychosocial transition are presented along with their mechanisms of coping with stress. The authors conclude that the development of effective strategies in studying coping behavior will be useful in broadening the individual's problem solving capabilities.

Hampton, J. Stress: The enemy. The National Observer, 1975, 14(6), 1; 5.
Stress and its influence on physical and emotional behavior is the main concern of the author. School related stress is shown to cause ulcers in young children, and the author stresses the need to identify the irritant and modify reactions in dealing with stress.

Hampton, J. D. Intolerance of ambiguity: A coping mechanism or mode of evaluation? Revista Interamericana de Psicologia, 1970, 4(1), 43-49.
The author attempts to establish a criterion for intolerance of ambiguity, and to clarify empirically the relationship of two approaches to its measurement. The measures and method of this study reveal that ambiguity tolerance is behaviorally manifested as a coping mechanism.

Hanvik, L. J. The child who is afraid of school. The Elementary School Journal, 1961, 62(1), 27-33.

The problem of school phobia and the underlying emotional disturbance is the central concern of the author. Because the author believes school phobia is related to an unhealthy parent-child relationship, he suggests that if the child does not return after a reasonable amount of pressure, the parents should seek professional help.

Hatfield, J. S., Ferguson, L. R., & Alpert, R. Mother-child interaction and the socialization process. *Child Development*, 1967, *38*(2), 365-413.
The effect of child rearing experiences on children's personality development by observing mother-child interaction is explored. The research was designed to record a mother's overt actions that have implied social learning influences on her child with reasonable accuracy. All information related to this study is reported.

Hawkes, T. H., & Furst, N. F. Race, socio-economic situation, achievement, IQ, and teacher ratings of students' behavior as factors relating to anxiety in upper elementary school children. *Sociology of Education*, 1971, *44*(3), 333-350.
This study is a replication and extension of an earlier study that investigated relationships between the race and socio-economic backgrounds of upper elementary school children and their responses on an anxiety questionnaire. The findings confirm those of the earlier study, black children from predominately inner city environments are found to score higher on anxiety than white, suburban peers. In addition, strong negative relationships are reported between anxiety and IQ, anxiety and achievement, and anxiety and teachers' ratings of pupil behavior.

Heilbrun, A. B. Style of adaption to perceived aversive maternal stimulation and selective attention to evaluative cues. *Journal of Abnormal Psychology*, 1971, *77*(3), 340-344.
Attentional aspects of the adaptive-style developmental model which postulates two styles of coping with sustained aversive maternal control experienced by sons are supported by this research. From the outlined study, results reveal that subjects who can block effects of maternal hostile-rejecting-controlling evaluative cues show narrowed attention to these cues, while subjects who are susceptible to some effects are showing broader attention to evaluative stimuli. The author hopes this material will help demonstrate that the model can enhance our understanding of how abnormal behavior develops.

Heilbrun, A. B. Tolerance for ambiguity in late adolescent males: Implications for a developmental model of paranoid behavior. *Developmental Psychology*, 1972, *7*(3), 288-294.
The prediction that late adolescent males who demonstrate an open style of coping with experienced aversive maternal control will be less tolerant of ambiguity for stimuli having a "maternal" source than will late adolescent males with a closed coping style is the focus of this study. Data was collected from 63 volunteer subjects, and the results indicate that late adolescent males differing in their style of adaptation to aversive maternal control would demonstrate a differential tolerance for ambiguous word stimuli.

Heilbrun, A. B., & Herbert, N. Style of adaptation to aversive maternal control and paranoid behavior. *The Journal of Genetic Psychology*, 1972, *120*, 145-153.
Styles of adaptation to aversive maternal control and paranoid behavior of

male children are investigated in this article. With the use of non-clinical adolescent males, it was predicted that those males with an open adaptive style would show paranoid tendencies and closed-style males would not. Criteria for measuring and defining are presented along with an outline of the results. The authors conclude that aversive-maternal-control, open-style males demonstrated the greatest inflexibility of thinking, as was initially predicted.

Henney, M., & Mortenson, W. P. What makes a good elementary school teacher? The Journal of Teacher Education, 1973, 24(4), 312-316. Explored are the various teaching styles of elementary school classroom teachers to determine what teacher characteristics are desirable. Categories under discussion include teacher knowledge of content, method of presentation of lessons, activities during lessons, learning atmosphere, relationship to children, awareness of and provision for individual differences, provision for challenging thinking, and provision for building independence. The authors conclud that a desirable teacher will be able to practice all of the above procedures.

Hillson, J. S., & Worchel, P. Self concept and defensive behavior in the maladjusted. Journal of Consulting Psychology, 1957, 21(1), 83-88. Tested are several hypotheses concerning self concept and defensive behavior in the maladjusted. The article describes previous research, standing theories, and provides an outline of the authors' hypotheses. Results of the study varied, primarily proving the hypothesis that maladjusted subjects characterized by anxiety would present a depreciated self picture, report high ideals, and show a high discrepency between self and ideal concepts, and that maladjusted subjects with defensive patterns would show little discrepancy between self and ideal and would present a self picture similar to that of normal subjects.

Hishiki, P. C. The self concepts of sixth grade girls of Mexican-American descent. California Journal of Educational Research, 1969, 20, 56-62. The relationship of the role of self-concept and the sense of adequacy to intelligence and academic achievement in individuals is explored in this study. The study was conducted with a group of Mexican-American sixth grade girls and a group of Caucasian girls in order to show that both groups would not differ in self-concept; in relationships between measures of self-concept and intelligence and achievement; or patterns of self-description. However, findings reveal that there was a significant difference between races; with Caucasian self and ideal concepts higher than those of the Mexican-Americans. Correlations between self-concept and intelligence were positive, and the author concludes that while some difference do exist, the Mexican-American girls do want and expect to go to college and that it is the role of the school to provide every opportunity for bringing the reality and aspiration level of these students closer together.

Horrocks, J. E., & Mussman, M. C. Middlescence: Age related stress periods during adult years. Genetic Psychology Monographs, 1970, 82(2), 119-159. Discussed is the relationship between age and various stress periods during adult years. The problem is introduced and reviewed in relation to background literature, and the study at hand is presented in terms of dynamics, hypotheses, procedures, questionnaires, treatment of data, and results. Observation of the pattern of changes for all 1063 respondants led to the conclusion that adults in their early forties may experience a period of generalized dissatisfaction with life in general, although the line repre-

senting the teacher group was indicative that this period exists only in the higher educated group. In addition, higher status correlated with higher levels of satisfaction.

Horwich, F. R. Fantasy and reality-children need both. The PTA Magazine, 1969, 64(4), 10-12.
The need for children to have reality and fantasy in the learning process is the primary focus in this article. The authors suggest that a proper balance of fantasy and reality will allow a child maximum exposure and serve him well in home, school, and community.

Hughes, J. B., Sprague, J. L., & Bednig, A. W. Anxiety level, response alteration, and performance in serial learning. The Journal of Psychology, 1954, 38, 421-426.
This study was designed to compare verbal serial learning of anxious and non-anxious subjects. The procedure, apparatus and results of the tests are presented. The major conclusion drawn from the study is that differences in learning between extreme anxiety groups are apparently a function of the intra-trial temporal interval used.

Hughes, T. M. A study of the relationship of coping strength to self concept, school achievement and general anxiety level in sixth grade pupils. Dissertation Abstracts International, 1968, 28(10), 4002-A. (Abstract)

John, E. R. Contributions to the study of the problem-solving process. Psychological Monographs, 1957, 71(18), 1-39.
Discussed is the problem-solving and information apparatus (PSI) which permits the presentation of many different abstract problems of quantifiable information content and structure. In order to provide a general description of problem solving behavior, an experiment was conducted involving PSI. A number of conclusions are warranted by the data. First, marked differences exist between groups of individuals engaged in the advanced study of certain disciplines. Second, these differences exist qualitatively between groups intending to enter these disciplines, before specialized study has occured. Third, the effect of education varies according to the discipline studied, with performance in the various areas of the problem-solving process being affected differently. Generally, the data indicated that training or experience in certain activities, brings about habituation to certain kinds of conceptual and organizational processes displayed in repeated PSI performance.

Jung, S. M. Evaluative uses of unconventional measurement techniques in an educational system. Palo Alto, California: American Institute for Research, 1970. (ERIC ED 045 693.) (Abstract)

Kern, R. M. The comparative effectiveness of a peer helper group counseling procedure and counselor oriented group counseling procedure on the adjustment of elementary school children. Dissertation Abstracts International, 1971. 31(8), 3877-A. (Abstract)

Kitano, H. H. L. Adjustment of problem and nonproblem children to specific situations: A study in role theory. Child Development, 1962, 33(1), 229-233.
The stated purpose of this study was to use concepts in role theory to test the hypothesis of problem behavior originated by Cottrell which concerns

specificity of role expectations: the degree of adjustment to roles which a society assigns to its age-sex categories varies directly with clarity with which such roles are defined. Findings reveal that clear role expectations and enforcements result in a high degree of adjustment on the part of normal and problem children. It is suggested that an analysis of the total situation of the child, including various demands and expectations placed on him, should be part of any definition of what constitutes a "problem child".

Klausmeier, H. J., Check, J., & Feldhusen, J. Relationships among physical, mental, achievement, and personality measures in children of low, average, and high intelligence at 125 months of age. American Journal of Mental Deficiency, 1960, 67, 69-78.
This is the third and concluding article in a series reporting studies of relationships among physical, mental, achievement, and personality measures in children of low, average, and high intelligence. Correlational analyses showed significant and positive correlations among the 4 groups of meausres. In relation to specific hypotheses, it was found that: 1) low level physical development does not accompany low level achievement in reading or arithmetic; 2) uneven physical development does not accompany low achievement in reading or arithmetic; 3) the average IQ children show greater within child variability in grip, IQ, reading, arithmetic, and language than either the high or low which are equally variable; and 4) the within child variability in reading, arithmetic, and language is the same among the IQ groups.

Klausmeier, H. J., & Loughlin, L. J. Behaviors during problem solving among children of low, average, and high intelligence. Journal of Educational Psychology, 1961, 52(3), 148-152.
Differences among groups of children of low, average, and high IQ in terms of behavior as they solved problems is studied. The results of the conducted experiment reveal that high IQ children show greater incidence than average or low in noting and correcting mistakes easily and independently in varifying solutions, and using logical approaches; whereas, the low IQ group showed a greater incidence than the average and high IQ in offering an incorrect solution. The high IQ children were superior to low in efficiency of methods.

Kroeber, T. C. The coping functions of the ego methanisms. In R. W. White (Ed.) The study of lives: Essays on personality in honor of Henry A. Murray. New York: Atherton Press, 1963.
Mechanisms of the ego as general mechanisms which may take on either defensive or coping functions are proposed in this article. A model for the coping functions of the ego mechanisms and their manifestations is presented. Results of the pilot study conducted in 1960 are described, but the author focuses on the model of functioning rather than its experimental validation. The author notes that not even the smallest part of his work can be discussed without reference to the matrix from which it was drawn, and he feels that only from far reaching studies useful extensions of ego psychology will come.

Kvaraceus, W. C. Helping the socially inadapted pupil in the large city schools. Exceptional Children, 1962, 28(8), 399-404.
The need to help the socially inadapted pupil in the large city schools is the primary concern of the author. He cites various needs for maintaining the school as an ego institution and having the teacher serve as a person and a professional worker for the student in need of help. He outlines the emotional needs of pupils and teachers, the threat of impersonality in schools and the need for special services for pupils and teachers. In addition, he proposes that all professional educators should be committed to uncovering ways and means to answer the challenge of the troubled pupil.

LaDue, D. C. Coping with the culturally different in social studies. Education, 1967, 88(2), 126-129.
The author proposes solutions to the more-than-usually complicated problems of classrooms composed of culturally different children by considering what administrators, curriculum directors, and teachers can do that will bring immediate relief. The numerous suggestions center around cooperation, flexibility, and the tailoring of the curriculum to the children's needs.

Lazarus, R. S., Baker, R. M., Broverman, D. M., & Mayer, J. Personality and psychological stress. Journal of Personality, 1957, 25, 559-577.
The aim of this research program was to investigate personality-based individual differences in response to stressful conditions. Conclusions found in this presentation of research on three diverse themes indicate: 1) that motive states are not necessarily directly reflected in fantasy or its actualization in behavior and that whether a need is expressed is a function of regulative processes of the personality; 2) that the search for main effects of independent variables must give way to analysis of interactions among variables; 3) that developmental psychology can make a contribution to the understanding of response to stressful conditions in terms of regression and progression of function.

Lazarus, R. S., Deese, J., & Hamilton, R. Anxiety and stress in learning: The role of intraserial duplication. Journal of Experimental Psychology, 1954, 47(2), 111-114.
This study concerns the relationship between serial learning and personality variables under two conditions of stress produced by electric shock. Details of the study reveal no significant differences between the performance of the high and low anxiety groups. These results are shown to support the hypothesis that task difficulty reverses the usual anxiety-avoidance learning relationships.

Leary, T., & Coffey, H. S. The prediction of interpersonal behavior in group psychotherapy. Group Psychotherapy, 1954, 7(1), 7-51.
Prediction in this study is accomplished through a method for measuring interpersonal operations involving 16 variables of interaction which are arranged on a circular continuum and which can be summerized by trigonometric procedures. In addition to the initial type of behavior to be expected in the group therapy situation, this paper deals with prediction of the consistency or variability of this behavior as treatment progresses.

LeShan, E. J. Helping children cope with stress. PTA Magazine, 1964, 58(5), 7-9. Discussed in this article is stress in the 3-5 year old child and ways in which parents and teachers should react to this stress. The author states that parents and teachers must accept each child's manner of coping with stress in order to let him develop fully his self respect.

Lesser, G. S. The relationship between various forms of aggression and popularity among lower-class children. Journal of Educational Psychology, 1959, 50(1), 20-25.
The main hypothesis proposed is that various manifestations of aggression meet with different degrees of approval and disapproval by the peer group of lower-class children. Results of the study confirm the sypothesis and indicate that lower-class boys strongly disapprove of verbal aggression and indirect aggressive acts while they feel relative approval about retaliation to an aggressive attack.

Lewis, M. D. A study of the relative effects of counseling and consultation upon personality and social adjustment, sociometric status, and achievement-oriented behavior of third grade children. Dissertation Abstracts International, 1970, 31(2), 609-610-A. (Abstract)

Lewis, M. D. The effects of counseling and consultation upon the sociometric status and personal and social adjustment of third grade pupils. Elementary School Guidance and Counseling, 1971, 5(1), 44-52.
The relative effects of counseling, working directly with children, and consulting, working with teachers who can affect the learning environment of children are discussed. Neither method was shown to be exclusively effective; when one was effective, the other was almost equally so. The author suggests that the two approaches should be viewed as parts of the totality of guidance services rather than as mutually exclusive factors.

Lewis, W. A., Lovell, J. T., & Jessee, B. E. Interpersonal relationship and pupil progress. Personnel and Guidance Journal, 1965, 104(4), 396-401. Tested is the hypothesis that those students who perceive a relationship with their teacher (that is in the direction of the ideal psychotherapeutic relationship identified by Hiene) will make greater academic gains as measured by standardized tests than those who perceive a non-therapeutic relationship with their teacher. Findings confirm the hypothesis for the sixth-grade class studied, but not for the ninth-grade class.

Lipton, A. Classroom behavior: Messages from children. Elementary School Journal, 1971, 71(5), 254-261.
Students' classroom behavior is discussed in terms of teacher-pupil relationships, pupil-pupil relationships, classroom methods and materials, the personality of the child, and the school as an institution. The article attempts to understand the role that defense mechanisms play in forming a child's behavior. Various responses are discussed: hysterical, obsessive compulsive, paranoid, impulsive, and several others. The author suggests that most children are "defending" themselves in the classroom and thereby missing much learning. He concludes that teachers need to work to find new ways to make the classroom come alive and allow a child's behavior to become creative rather than defensive.

Livingston, A. H. Does departmental organization affect children's adjustment? The Elementary School Journal, 1961, 61(4), 217-220.
The question of what effect departmental organization has on children's adjustment is answered in this study. The surveys and tests administered reveal that the group exposed to departmental organization had significantly better adjustment measures than the norm group. The author concludes that there is a need for additional research to more thoroughly determine the effects of departmental organization on other facets of children's development.

Long, N., & et al. Helping children cope with feelings. Childhood Education, 1969, 45(7), 367-372.
Open communication between teachers and students and teacher recognition of a child's conflicts are emphasized by the authors. The concepts of decoding, labeling, and redirecting behavior are discussed, and three case histories are included.

Longstaff, H. P., & Jurgensen, C. E. Fakability of the Jurgensen Classification Inventory. The Journal of Applied Psychology, 1953, 37(2), 86-89.
This study was designed to investigate the "fakability" of the Jurgensen Classification Inventory. The authors conclude that the test should not be used in situations where persons are likely to be motivated to get good scores. They suggest that techniques other than forced-choice will have to be developed to overcome malingering.

Lucas, J. D. The interactive effects of anxiety, failure, and intra-serial duplication. Sacramento, California: Sacramento State College.
In the present study, an investigation of the effects upon performance of anxiety, failure, and intra-serial duplication in immediate memory was chosen as the experimental task. A full presentation of the experimental design and procedure used in the study is included. The results indicate that the non-anxious performed significantly better than the anxious; however, complications caused the author to conclude that the sensitivity of measures of immediate memory to differences in anxiety may be a function of the degree of intra-serial duplication employed.

Lutsk, B. M. Teacher behavior: A different perspective. Clearing House, 1972, 46(6), 364-369.
The interaction between teacher and student in an effort to gain understanding of some factors that affect teachers' behavior is the main focus of this article. Suggestions for teacher awareness of student subcultures and student-teacher differences are outlined. The author stresses that the teacher should act instrumentally so his attention will be directed toward task completion rather than individuals. He concludes that future and present teachers need to be made aware of teaching instrumentally.

Maltman, I., Fox, J., & Morrisett, L., Jr. Some effects of manifest anxiety on mental set. Journal of Experimental Psychology, 1953, 46(1), 50-54.
The experiments reported have studied the effects of manifest anxiety on the direction of thinking. Two separate experiments are conducted and results show that high-anxiety groups made significantly fewer errors than the low anxiety groups and that there is a tendency to shift to a more direct method of solution which exists in inverse proportion to the related level of anxiety.

Mandler, G., & Sarason, S. B. A study of anxiety and learning. *Journal of Abnormal Social Psychology*, 1957, *47*(2), 166-173.
The role that anxiety responses evoked in a situation and the relation of the responses to performance and learning are investigated. The results suggest that anxiety is an important variable in test performance, and that it does not necessarily depress scores.

Marliave, R. S. Attitude, self-esteem, achievement, and goal-setting behavior associated with goal-setting conferences in reading skills. Report from the Project on Variables and Processes in Cognitive Learning. Report No. TR-176. Contract No. OEC-5-10-154. Wisconsin: Wisconsin University, Research and Development Center for Cognitive Learning, 1970. (ERIC ED 057 404.) (Abstract)

McBee, G., & Duke, R. L. Relationship between intelligence, scholastic motivation, and academic achievement. *Psychological Reports*, 1960, *6*(1), 3-8.
The effect of intelligence and scholastic motivation and the interrelationships of these factors on academic achievement are the main concerns of the authors. Tests of these factors were administered and analysis of the data indicated a strong positive relationship between scholastic motivation and academic achievement, and between intelligence and achievement.

McCallon, E. L. Teacher characteristics and their relationship to change in the congruency of children's perception of self and ideal-self. *The Journal of Experimental Education*, 1966, *34*(4), 84-88.
The relationship between certain teacher characteristics and change in the congruency of children's perception of self and ideal-self is the main purpose of this study. The experiment is fully presented with discussions of instruments, method, treatment of data, and implications of findings. A movement toward greater congruency of self-ideal self perception was exhibited by the subjects of the study. However, only one predictor, favorableness of perception of the student considered least desirable to teach, proved to be a significant predictor of change.

McCandless, R. B. Peer popularity and dependence on adults in preschool-age socialization. *Child Development*, 1961, *32*(3), 511-518.
The interaction between popularity, dependency on adults, and sex in preschool children are investigated in this research. Results of experimentation show that dependency relates negatively to popularity with peers. This result was significantly stronger for girls than for boys.

McCandless, R. B., & Castaneda, A. Anxiety in children, school achievement, and intelligence. *Child Development*, 1956, *27*(3), 379-382.
Reports on correlations between anxiety, academic achievement, and intelligence in fourth, fifth, and sixth grade subjects are in this article. Results reveal that anxiety may be a useful predictor of school achievement as there is a significant relationship between all three factors studied.

McGuire, C., & Clark, R. A. Age-mate acceptance and indices of peer status. *Child Development*, 1952, *23*(2), 141-154.
Two alternative indices of peer status and essential aspects of the level of acceptance of age-mates are the concerns of the authors. Through experimentation, a working hypothesis is detailed: experiences in an age-mate context account for a part of the variation in cognitive descriptions,

cathectic attachments, value apprehensions, etc. The level of acceptance could be a variable by which individuals and sub-groupings in a population are distinguished and identified.

McGuire, C., Hindman, E., King, F. J., & Jennings, E. Dimensions of talented behavior. Educational and Psychological Measurement, 1961, 21(1), 3-38. The term "talent" is used to designate "a specific ability or aptitude, either natural or acquired, or a capacity for achievement or success." Forty-one measures (cognition, perception, psychomotor potential, motivation, expectation, pressures and valued performance) were administered to 1242 subjects in four Texas communities. Detailed factor analysis is given for the factor variables.

McReynolds, P., & Acker, M. Relation of object curiosity to psychological adjustment in children. Child Development, 1961, 32(2), 393-400. Exploratory behavior is impeded by a high degree of unassimilated percepts is the beginning hypothesis. The results support the hypothesis and raise the possibility that student anxiety hinders curiosity-dependent learning, although curiosity itself is not a significant factor in all aspects of classroom learning.

Medinnus, G. R. The development of a first grade adjustment scale. Journal of Experimental Education, 1961, 30(2), 243-248. Described in this paper is the construction of a first-grade adjustment assessment scale, consisting of 52 behavioral items divided into 5 major groups. Specifically, the scale measures the child's adjustment to the demands of the educational regime in the first grade. Results of this study provide possible uses of the scale.

Medinnus, G. R. The relation between several parent measures and the child's early adjustment to school. Journal of Educational Psychology, 1961, 52(3), 153-156. Measures of the relationship between parental attitudes toward a number of aspects of child rearing and the child's early adjustment to first grade are reported. The various types of measures and data collected are recorded, and the interpretation indicates that the lower ratings of the homes of the poorly adjusted children reflected parental rejection which was a causal factor in the children's poor adjustment to the demands of the first grade situation.

Mellinger, G. D., & Manheimer, D. I. An exposure-coping model of accident liability among children. Journal of Health and Social Behavior. 1967, 8(2), 96-106. Presented is a conceptual model of accident liability among children and a discussion of the model in terms of data from a study of childhood accidents. Findings are discussed in the light of two concepts: exposure to hazards and ability to cope with them. In general, the proposed model was supported with some suggestions for modification to account for personality maladjustment.

Michelman, S. The importance of creative play. American Journal of Occupational Therapy, 1971, 25(6), 285-290. Creative play is discussed as a means of enabling the child to acquire a sense of mastery and competence over himself as well as his human and nonhuman environment. The nature, development, and benefits of creative play are presented. The author concludes that we must encourage exploratory behavior that promotes effective interaction and learning, and finally, share with each other the understanding we get from working with children and observation of them at play.

Miller, C., & Miller, D. The importance of certain personal qualities and professional competencies in successful classroom teaching. The Journal of Teacher Education, 1971, 22(1), 37-39.
Results of this study indicate that professional zeal, loyalty, and cooperation contribute more to the success of a classroom teacher than any of the other personal quality factors explored. In addition, it was found that classroom management and discipline and knowledge of subject matter were most important to the principals and superintendents doing the rating. The authors conclude that by using these findings teachers can improve the content and quality of their courses.

Montgomery, K. C. The relation between fear induced by novel stimulation and exploratory behavior. Journal of Comparative Physiological Psychology, 1955, 48, 254-260.
This article investigates whether novel stimulation evokes the fear drive as well as the exploratory drive. Two experiments were designed and executed for the purpose of this investigation. Four major conclusions are made with the most important one indicating that novel stimulation may evoke both the exploratory drive and fear drive.

Montgomery, K. C., & Monkman, J. A. The relationship between fear and exploratory behavior. Journal of Comparative Physiological Psychology, 1955, 48, 132-136.
Tested is the hypothesis that exploratory behavior of rats in mazes is motivated by fear. Several tests are reported and results of these experiments are discussed. The major conclusion is a refutation of the hypothesis (ie. fear does not motivate exploratory behavior), and that the exploratory behavior is motivated by an exploratory drive which is evoked by novel stimulation.

Murphy, L. B. Adaptational tasks in childhood in our culture. Bulletin of the Menninger Clinic, 1964, 28(6), 309-322.
Relationships between coping devices, defense mechanisms, and autonomous functions of the ego in the early development of the child's capacity to handle his relationship to the environment are discussed in this article. Three stages are outlined: development in infancy, the emergence of functions, and later tasks such as school. The author discusses the strategies that individuals use to cope with stress.

Murphy, L. B. Children cope with crisis. Children, 1967, 14(5), 197-199.
The author reviews a book by Dr. Robert Coles entitled, Children of crisis: A study of courage and fear. Dr. Coles studied children in the desegregation movement and is concerned with the problems of coping with integration.

Murphy, L. B. Coping devices and defense mechanisms in relation to autonomous ego function. Bulletin of the Menninger Clinic, 1960, 24, 144-153.
This article discusses the different types of defensive behavior and traces the behavior development in several case studies. She concludes that the differences in happy versus unhappy children appears to be in the flexibility with which defense mechanisms are taken up to augment the child's coping resources and then relinguished when no longer needed. Another difference lies in the success of the over-all coping pattern in protecting and facilitating the child's capacity for gratification, relationships and growth.

Murphy, L. B. Spontaneous ways of learning in young children. Children, 1967, 14(6), 211-215.
Twenty-three steps in infants' learning based on the author's observation of children in various parts of the world are examined. Some kinds of learning that are discussed include using reflexes, looking and listening, selecting stimuli, and exploring the environment.

Murrell, S. A. Family interaction variables and adjustment of nonclinic boys. Child Development, 1971, 42(5), 1485-1494.
The issue studied was whether selected family interaction variables were related to a direct linear fashion with psychological adjustment or whether such relationships are obtained only at extremes of the adjustment dimension. Results of the study indicate that the family unit effectively manages achievement demands and meets the social needs of its members, and that consequently, these members function effectively outside the family system.

Myrick, R. D., & Pizer, A. Relationship experiences for emotionally disturbed children. The Elementary School Journal, 1969, 69(8), 413-417.
All emotionally disturbed children have one thing in common, and that is they have weak, detrimental, deficient experiences in personal relationships. Their bringing excessive anxiety, fear, defensiveness, and guilt to the classroom is a hindrance to education. This article shows that various forms of interactions involving the children and the community were helpful to all the children.

Ojemann, R. H. Helping children understand why they act as they do. NEA Journal, 1960, 49(6), 25-26.
The author emphasizes the importance of children developing a causal understanding of their behavior - why people act as they do and what are the effects of their behavior. The causal approach to teaching (observation of interactions) is discussed and results of this study show that experiences in observing, studying, and using the causal approach are effective in instrumenting a more causal orientation in the pupils. Finally, it was revealed that the causal oriented pupils were able to handle ambiguous situations more logically.

Oner, N. P. Impact of teacher behavior and teaching technique on learning by anxious children. Dissertation Abstracts International, 1972, 32(11), 6215-A. (Abstract)

Osborn, W. P. Adjustment differences of selected foreign-born pupils. California Journal of Educational Research, 1971, 22(3), 131-139.
Using the Bell Adjustment Inventory, this study compares adjustment dif-

ferences in new schools of foreign-born pupils and matched, native-born pupils. Results reveal that the cultural, educational, and language differences which confront foreign-born pupils do not typically result in great maladjustment; however, foreign-born pupils show greater self-consciousness, shyness, and fear of victimization by fate.

Palermo, D. S., Castaneda, A., & McCandless, B. R. The relationship of anxiety in children to performance in a complex learning task. *Child Development*, 1956, *27*(3), 333-337.
Using a modified Taylor scale of manifest anxiety on fourth, fifth, and sixth graders, this experiment investigated the relation of motivational level to performance in a trial-and-error learning situation. The results were in agreement with those from similar studies: the anxious subjects (those with high motivation) made significantly more errors in the learning task.

Parsons, T. The school class as a social system: Some of its functions in American society. *Social Structure*. New York: Free Press, 1964.
The school as the principle channel selection for various adult roles and as an important agent of socialization is discussed in this essay. Major structural patterns of the public school system are described and suggestions are made as to how these patterns serve the school's functions.

Pearlin, L. Il, Yarrow, M. R., & Scarr, H. A. Unintended effects of parental aspirations: The case of children's cheating. *American Journal of Sociology*, 1967, *73*(1), 73-83.
First, background to cheating and studies done on cheating are discussed. Next, the study itself is presented: methods, results, etc. From the results, the author concludes that cheating is a class of behavior that is learned but not taught, unintended and disdained. Cheating is shown to be an adaptation to conflict arising from hindered access to desired goals.

Peck, R. F. A cross-national comparison of sex and socio-economic differences in aptitude and achievement. Paper presented in the symposium "Some implications of cross-national research for a universal theory of coping behavior," at the annual meeting of the American Educational Research Association, New York, 1971. (Abstract)

Peck, R. F. Coping styles: A conceptualization of effective human behavior. In R. Dias-Guerrero, *Dimensions in cross-cultural research*.
The existence of an imbalance in the available idea system for assessing behavior is proposed in this essay. The author makes the point that prior to this decade, there has not been a move underway toward developing a concept system for describing and explaining the ways in which people deal effectively with life problems. His study identifies seven dimensions for describing coping styles and three dimensions of measuring the coping effectiveness a person shows in response to a given problem. The author concludes that if people were to see psychologists as more positive in their attitudes, they would be likely to become more receptive to psychologists' observations of them.

Peper, J. B., & Chansky, N. M. Esteem and achievement in arithmetic. *Elementary School Journal*, 1970, *70*(5), 284-288.
Examination of the relationship between achievement in arithmetic and esteem was conducted in this study. The hypothesis that rankings of achievement in

arithmetic made by a pupil, his peer group, and his teacher are related to his actual achievement was tested. Results indicate positive correlation and support of the hypotheses, and that there is agreement between ratings of self, peers, standardized tests, and teacher.

Perry, M. H. Helping children with emotional problems at school. Childhood Education, 1970, 46(6), 290-292.
The role of the teacher in helping children with emotional problems at school is explored in this article. The author encourages the school counselor, administrator, and teacher to work as a team in helping children with their problems. Some of the children's needs are identified, and suggestions on fulfulling those needs are made.

Phillips, B. N. School stress as a factor in children's responses to tests and testing. Journal of Educational Measurement, 1971, 8(1), 21-26.
The factor of stress in students' responses to tests used for this study is presented along with a table of results. The study investigated whether negativistic and acquiescent children differ on indicators of interpersonal stress, and whether self-enhancing and self-derogating children differ on indicators of academic stress. Results show that there were indeed differences in both areas of study.

Phillips, B. N., & Hindsman, E., & Jennings, E. Influence of intelligence on anxiety and perception of self and others. Child Development, 1960, 31(1), 41-46.
The effects of intelligence on relationships between anxiety and attitudes toward self and others are investigated in this study. The study substantiates the generally accepted hypothesis that anxiety produces dissatisfaction with self and others. These relationships were modified to some extent when the intelligence of the subjects was considered. The authors conclude that further research is needed to provide more definitive explanations.

Phillips, B. N., King, F. J., & McGuire, C. Studies on anxiety: I. Anxiety and performance on psychometric tests varying in complexity. Child Development, 1959, 30(2), 253-259.
Anxiety as related to performance on psychometric tests varying in complexity is studied. A background of previous studies is presented and description of the current study follow. In summary, no evidence was found to support the hypothesis that anxiety differentially effects performance on tasks differing in difficulty and complexity.

Pierce-Jones, J., Reid, J. B., & King, F. J. Adolescent racial and ethnic group differences in social attitudes and adjustment. Psychological Reports, 1959, 5, 549-552.
The prediction that white (Anglo and Latin American) and Negro adolescents of similar mental abilities differ in selected orientations toward society and its institutions and in personal-social adjustment is investigated. The only measure differing reliably between whites and Negroes was the "negative orientation to society," in which the Negroes scored highest and the whites the lowest. This difference was interpreted as being due to inter-group relations and socialization theory.

Polito, A. J. The construction and evaluation of a rating scale of pupil social adjustment behavior and its significant implications for the elementary

schools grades four, five, and six. Dissertation Abstracts International, 1967, 28(6), 2102-2103-A. (Abstract)

Radebaugh, B. F. Student teachers, knowledge, and effective teaching behavior. The Journal of Teacher Education, 1970, 21(2), 173-177.
How to develop effective behavior patterns in student teachers is discussed in this paper. Based on the five behavioral patterns of Haberman, five assumptions are presented for the effectiveness of each behavior pattern. The author encourages the student teacher to extend these patterns for their individual use.

Retish, P. M. Changing the status of poorly esteemed students through teacher reinforcement. The Journal of Applied Behavioral Science, 1973, 9(1), 44-50.
The use of overt teacher reinforcement in improving the sociometric status of poorly esteemed students is the focus of the author. Results show that reinforcement can change the social position of a poorly esteemed child, but that teacher ratings of the children are not consistently changed.

Richards, H. C., & McCandless, B. R. Socialization dimensions among five-year-old slum children. Journal of Educational Psychology, 1972, 63(1), 44-55.
In this study, data from a three-year period is analyzed into five factors: verbal facility, coping with anxiety by withdrawal, coping with anxiety by aggression, alienation, and sex. Results indicate negative correlation of verbal facility and withdrawal, and verbal facility and aggression in females.

Richardson, S. K. Children in an anxious world. NEA Journal, 1960, 49(6), 27-28.
The role of schools as the first line of defense in helping children cope with the bewilderment and anxiety created by the contemporary scene is discussed. The teacher is urged to face the issues openly and honestly with the students, giving support and ressurance.

Ripple, R. E. Affective factors influence classroom learning. Educational Leadership, 1965, 22(7), 476-480; 532.
Research on the influence of affective factors on classroom learning and how these factors can facilitate or interfere with learning is presented. Affective factors are those referring to personal-social-emotional behaviors of teachers and students and to the feeling tone of the learning environment generated by their interactions. The author concludes with suggestions for the best affective qualities of teachers and classrooms.

Rising, M. N., & Copp, B. M. Adjustment experiences of non-immigrant foreign students at the University of Rochester. Rochester, New York: University of Rochester, 1968. (ERIC ED 062 902.) (Abstract)

Rothenberg, B. B. A pilot study of young children's coping strategies. Final report. Palo Alto, California: Children's Health Council of the Mid-Peninsula, 1971. (ERIC ED 059 515.) (Abstract)

Rothenberg, B. B. Children's social sensitivity and the relationship to interpersonal competence, intrapersonal comfort, and intellectual level. Developmental Psychology, 1970, 2(3), 335-350.
This article relates to a study designed to develop a measure of social

sensitivity and to investigate relationships between social sensitivity and other variables assumed to be theoretically important for the development of this ability. The design of the study is fully detailed within the article (method, measures, results, etc.). The most salient result of this study describes preadolescence as a period of life when most extensive growth in the accurate perception of other people's feelings, thoughts, and motives takes place. The secondary result was that intelligence was clearly important in the ability to understand other people's behavior. In general, results showed a positive relationship between social sensitivity and interpersonal adjustment.

Rothman, A. I. Teacher characteristics and student learning. Journal of Research in Science Teaching, 1969, 6(4), 340-348.
The study related in this article serves to test two hypotheses: 1) teachers' personalities better predict students' learning than do the extent of teachers' preparation, knowledge, or years of experience in teaching; 2) teacher need for heterosexuality is related to student learning. Results indicate that students learn more from teachers with greater preparation, but they lose interest in the subject and that there is an overall relationship between teacher personality and heterosexuality and student achievement and learning. Teacher background (preparation, knowledge, and years of experience) cannot be used as the sole predictor of effectiveness.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80(1), 1-28.
The differences in behavior when subjects perceive reinforcement due to their own behavior as opposed to reinforcement due to chance or experimenter control are explored. The hypothesis that the internal/external control variable is of major significance in understanding the nature of learning processes in different kinds of learning situations and that consistent individual differences exist among individuals in the degree to which they are likely to attribute personal control to reward in the same situation is tested. Results are summarized and found to be unusually consistent with the proposed hypothesis.

Rowland, T. S. Mother-son interaction and the coping behavior of young boys. Dissertation Abstracts International, 1969, 30(1), 389-390-B. (Abstract)

Ryans, D. G. Some relationships between pupil behavior and certain teacher characteristics. Journal of Educational Psychology, 1961, 52(2), 82-90.
The relationships between trained observers' assessments of pupils, and teachers of those pupils are studied. The measure of the selected dimensions of pupil and teacher classroom behavior is discussed. Results of observations are different for elementary versus secondary school classes. For elementary classes, high positive relationships were noted between observers' assessment of productive pupil behavior and effective teacher behavior; for secondary classes this relationship was low positive.

Sarason, S. B., Davidson, K., Lighthall, F., & Waite, R. Classroom observations of high and low anxious children. Child Development, 1958, 29, 287-295.
In order to investigate the development and correlates of anxiety in school age children, a direct observation study was made of children with high and low levels of anxiety. The article describes the subjects and procedures as well as the results which are discussed in relation to previous

findings. Results show that highly anxious boys exhibited less task orientation, more insecurity and poorer academic development than less anxious counterparts. However, highly anxious girls differed from less anxious girls in that they seemed to have a stronger need for achievement, showed less "unintelligible" behavior, and contained fewer distractable individuals.

Sarason, S. B., Davidson, K., Lighthall, F., & Waite, R. Rorschach behavior and performance of high and low anxious children. *Child Development*, 1958, *29*(2), 277-285.
The performance and behavior of children with high and low levels of anxiety was studied through administration of the Rorschach followed by clinical analysis. The highly anxious subjects were less responsive, less agressive, rejected more cards, responded less to color, and gave responses with more anatomy context than the less anxious subjects. The behavior observations indicated that differentiation between high and low anxiety in boys was more apparent than in girls. The highly anxious boys seemed indecisive and dependent.

Schmuck, R. A. Some relationships of peer liking patterns in the classroom to pupil attitudes and achievement. *School Review*, 1963, *71*(3), 337-359.
Classroom groups were examined regarding the interrelationships between interpersonal peer-group variables and intrapersonal individual variables. A review of past studies provides background on various classroom behavior theories. The theoretical framework of this study proposed that an individual's self-concept is partially formed by social relations in the classroom peer group. The emotional and cognitive elements of this self-concept in turn influence academic performance. Empirical evidence generally supported the major hypotheses developed from this theoretical framework.

Schmuck, R. A., & Luszki, M. B. Black and white students in several small communities. *Journal of Applied Behavioral Science*, 1969, *5*(2), 203-220.
This study was undertaken to determine how black pupils in settings different from the extensively studied central cities of large metropolitan areas compared with white counterparts on various measures of school and personal adjustment. The results indicate minimal differences between matched black and white students from small midwest communities. The few differences found favored black students who indicated higher school adjustment and more parental interest. Implications and suggestions for classroom teachers are presented.

Schmuck, R. A., Luski, M. B., & Epperson, D. C. Interpersonal relations and mental health in the classroom. *Mental Hygiene*, 1963, *47*, 289-299.
In an attempt to clarify the relationship of classroom interpersonal relations to mental health and academic learning, this investigation focused on the pupil's attitude toward himself, his perception of reality, mastery of his environment, and actualization of his potential. The findings emphasized the relevance of positive affect or liking among members of a classroom group for individual mental health and effective learning. Teachers are encouraged to enhance a pupil's ability to obtain emotional support from his peers because it contributes importantly to the school's academic goals.

Schwartz, J. C., & Wynn, R. The effects of mothers' presence and previsits on children's emotional reaction to starting nursery school. *Child Development*, 1971, *42*, 871-881.
First in a series of studies designed to provide an empirical foundation to the choice of procedures for starting nursery school, this study compared: a) a previsit to the classroom prior to the starting of class versus no previsit; b) presence of mother in classroom for first twenty minutes of first class session versus immediate departure of mother. Results revealed that neither a previsit nor presence of mother had the anticipated effect of facilitating adjustment to school. The majority of children made a rapid and uneventful adaptation to the nursery school setting.

Sears, R. R., Whiting, J. W. M., Nowlis, V., & Sears, P. S. Some child-rearing antecedents of aggression and dependency in young children. *Genetic Psychology Monographs*, 1953, *47*(2), 135-236.
A hypothesis concerning the child-rearing antecedents of dependent and aggressive behavior in preschool children was devised and tested in the study. Main conclusions are 1) the kind and amount of frustration and punishment experienced by a child largely determine the properties of both the dependency and the aggression drives; 2) there are radical sex differences in the process by which these drives are developed; and 3) there are deep and perfasive differences in maternal treatment of boys and of girls after the first year of life.

Sejwecz, D., & Dion, K. L. Effects of choice and social-undesirability on unprovoked aggression. Paper presented at the Midwestern Psychological Association, Cleveland, Ohio, 1972. (ERIC ED 064 643.) (Abstract)

Selmer, I. J. Relationships among several measures of pupil adjustment. *Journal of Educational Psychology*, 1960, *51*(2), 60-64.
The purpose of this investigation was to determine interrelationships among three approaches to the measurement of adjustment: peer acceptance, self-rapport, and authority figure (teacher) ratings. The major results indicated that the pattern of obtained correlations was similar for girls, boys, and combined sexes and reflected a positive and reliable relationship among each of the pupil adjustment measures.

Serot, N. M., & Teevan, R. C. Perception of the parent-child relationship and its relation to child adjustment. *Child Development*, 1961, *32*(2), 373-378.
This article dealt with the parent-child relationship and its relation to child adjustment. The results supported the following hypotheses: 1) a child's adjustment is related to his perception of his relationship with his family; 2) the child's perception of the relationship is unrelated to his parents' perception of the same; 3) the parents' perception of the relationship is unrelated to his offspring's adjustment.

Shantz, D. W., & Pentz, T. Situational effects on justifiableness of aggression at three age levels. *Child Development*, 1972, *43*(1), 274-281.
The authors attempt to determine how and when children first use situational variables in deciding the appropriateness of various aggressive responses. Results indicated the importance of situational variables in development of judgments about aggression. Data suggested a pattern in which discrimination rules are first applied in a limited context, with the range of application expanding as the age of subject increases.

Shantz, D. W., & Voydanoff, D. A. Situational effects on retaliatory aggression at three age levels. Child Development, 1972, 44(1), 149-153.
Aggressive retaliation in boys at three age levels was investigated with regard to two dimensions of hypothetical provocation: accidental versus intentional and verbal versus physical. Results generally revealed that with increased age, subjects show greater differentiation in response to intentional and accidental provocation.

Shim, C. P. A study of the cumulative effect of four teacher characteristics on the achievement of elementary school pupils. The Journal of Educational Research, 1965, 59(1), 33-34.
Four teacher variables (college grade point average, degree, certification, and experience) were examined for their effect on pupil achievement over a five year period. The study was conducted in a relatively stable environment in which teacher characteristics were expected to be more influential than in a variable environment. The conclusion was that teacher variables did not significantly influence student achievement with IQ used as a control variable.

Shure, N. B., Spivak, G., & Jaeger, M. Problem-solving thinking and adjustment among disadvantaged preschool children. Child Development, 1971, 42(6), 1791-1803.
Cognitive interpersonal problem solving skills of four-year-old disadvantaged children were studied in relation to behavioral adjustment in the nursery school environment. The data suggests that the ability to conceptualize alternative solutions to peer and authority problem situations contributes to school behavior adjustment, but causal and consequential thinking are not significantly related to adjustment.

Sidle, A., Moos, R., Adams, J., & Cady, P. Development of a coping scale: A preliminary study. Archives of General Psychiatry, 1969, 20(2), 226-232.
This article reports an effort to develop a relatively structured, easily scorable scale for assessing coping strategies. Responses elicited by the scale devised for the study are evaluated with a view toward further study on coping and scale development.

Silber, E., Hamburg, K. A., Coelho, G. V., Murphy, E. B., Rosenberg, M., & Pearlin, L. I. Adaptive behavior in competent adolescents. Archives of General Psychiatry, 1961, 5(4), 354-365.
Adolescent coping mechanisms were explored through study of socially and academically competent high school students who were anticipating the transition to college. The authors concluded that an "active search for manageable levels of challenge in newness is more characteristic of the coping behavior of competent adolescents than a stabilized adaptation to the environment with a maximum reduction of tension" and that a variety of patterns reinforce each other in this approach.

Smallenburg, C., & Smallenburg, H. Coping with reality. The PTA Magazine, 1966, 60(6), 18-20.
This article contains responses to a questionnaire designed to determine how adolescents cope with reality (needs, stress, and problems). Results generally suggested that the students cope with reality in a thoughtful and confident way.

Soar, R. S. Methodological problems in predicting teacher effectiveness. *The Journal of Experimental Education*, 1964, *32*(3), 287-291.
The author outlines problems with criteria for prediction and assessment of teacher effectiveness, and suggests future considerations for improving research methodology.

Spaulding, R. L. Personality and social development: Peer and school influences. *Review of Educational Research*, 1964, *38*(5), 588-598.
This literature review focuses on studies of peer and school influences on personality and social development and concludes with a recommendation that future studies consider "curricular antecendents of specific classroom behavior problems" and how teacher responses effect the responses of different types of children.

Spaulding, R. L. What teacher attributes bring out the best in gifted children? *The Gifted Child Quarterly*, 1963, *7*(4), 150-156.
Identifying types of teacher-pupil classroom transactions that are most closely related to superior creative thinking in children is the object of this study. Teachers' influence on children's behavior and components of teacher-pupil transactions are explored. An acceptant, supportive climate is generally necessary, but varying degrees of structure are also important for different types of children.

Sprinthall, N. A., Whiteley, J. M., & Mosher, R. L. A study of teacher effectiveness. *The Journal of Teacher Education*, 1966, *17*(1), 93-106.
The aim of this research was to provide a viable conceptual framework for predicting and evaluating effective secondary school teaching. The results indicate that the developed systems for prediction may have relevance to effective and ineffective teaching. The basic hypothesis, that cognitive flexibility contributes to effective teaching was supported by the research.

Staudt, R. S. Some relationships between students' socialized anxiety and their perceptions of teachers' behavior. *Dissertation Abstracts International*, 1967, *27*(1), 3325-A. (Abstract)

Stedman, J. M., & Adams, R. L. Achievement as a function of language competence, behavior adjustment, and sex in young, disadvantaged Mexican-American children. *Journal of Educational Psychology*, 1972, *63*(5), 411-417.
Language competence, behavioral adjustment, and sex were investigated as predictors of first grade achievement in disadvantaged Mexican-American children of preschool age. Results indicated that measures of student adjustment constituted the strongest predictor of language achievement.

Stricker, L. J. Response styles and 16 PF higher order factors. Princeton, New Jersey: Educational Testing Service, 1973. (ERIC ED 076 596.) (Abstract)

Suinn, R. M. A factor modifying the concept of anxiety as an interfering drive. *Journal of General Psychology*, 1965, *73*(1), 43-46.
This study was designed to examine a factor modifying the hypothesized relationship between drive level and performance on complex tasks. Data suggested that although the conceptualization of anxiety as a drive which interferes with effective performance may be valuable, it is insufficient. Highly anxious subjects perform as well as those with low

anxiety, provided the highly anxious are able to cope effectively with tensions.

Tallman, I., & Levine, S. The emotionally disturbed child in the classroom situation. Exceptional Children, 1960, 27(2), 114-126.
Views concerning emotionally disturbed children are discussed by the authors. Assuming that emotional disturbances are caused by unfortunate life experiences, the authors propose that the classroom is the most appropriate structure for understanding and studying the child, and place special emphasis on the pupil-teacher and pupil-peer relationships to help the disturbed child.

Tenenbaum, S. Attitudes of elementary school children to school, teachers, and classmates. Journal of Applied Psychology, 1944, 28(2), 134-141.
The purpose of this investigation was to determine the extent attitudes expressed by children correlate with intelligence, school achievement, conduct and proficiency marks in school. The study suggests that society provides the child with a sense of right and wrong in relation to values, customs, and traditions, and that the child adopts the attitudes of the community in which he lives.

Thorton, R. G. The adaption of children to the organized concept of the school: The development of a proposed sociological inquiry. Final report. Philadelphia: Pennsylvania University, 1972. (ERIC ED 072 995.) (Abstract)

Tollefson, N. Selected student variables and perceived teacher effectiveness. Education, 1974, 94(1), 30-35.
A 100 item questionnaire was distributed to high school students to compare the students on 5 variables: father's educational level, grades earned, post high school plans, participation in school activities and enjoyment of school. Generally, the results indicate that high school students felt tolerance, flexibility, respect for students, enthusiasm for teaching, and skill in presenting the subject matter were important variables in determining a teacher's effectiveness in the classroom.

Wallen, N. E. Relationships between teacher characteristics and student behavior - Part III. Salt Lake City: University of Utah, 1966. (ERIC ED 010 390.) (Abstract)

Wallen, N. E., & et al. The Taba curriculum development project in social studies; development of a comprehensive curriculum model for social studies for grades one through eight inclusive of procedures for implementation and dissemination. Final report. San Francisco: San Francisco State College, 1969. (ERIC ED 040 106.) (Abstract)

Wayne, O. Anxiety and motivation as factors in inhibitory potential. Contract No. OEC-5-10-154, Madison, Wisconsin: Wisconsin University, 1966. (ERIC ED 011 945.) (Abstract)

Weinstock, A. R. Family environment and the development of defense and coping mechanisms. Journal of Personality and Social Psychology, 1967, 5(1), 67-75.
39 males were used as subjects to study the relationship between the development of ego methanisms and the family environment. Correlations

were made between ratings of subjects use of 10 defense and 10 coping mechanisms at 30 years of age, and ratings of the parents' personalities and subject's childhood family environments. The results indicate that subject's modeling of parental behavior is important to the development of particular defense and coping mechanisms.

Weyl, T. C. The development and evaluation of a new inventory of coping styles. Dissertation Abstracts International, 1972, 32(10), 6065-B. (Abstract)

White, R. W. Motivation reconsidered: The concept of competence. Psychological Review, 1959, 66(5), 297-333.
The author proposes that the motivation needed to attain competence cannot be wholly derived from sources of energy currently conceptualized as drives or instincts. First, reviews of relevant trends in the fields of animal psychology, psychoanalytic ego psychology, and related developments in general psychology are presented. The author points to the phenomenon of people being so accustomed to impressive levels of human accomplishment that it is difficult to realize how long an apprenticeship is required for the accomplishment. He believes that competence is acquired through drive, exploratory behavior, and selectivity.

White, R. W. The urge towards competence. The American Journal of Occupational Therapy, 1971, 25(6), 271-274.
Concepts of competence are the central concerns of the author, the primary concept being that the more one can learn about the environment before critical hunger or danger arises, the better prepared one is to find food or shelter when it becomes crucial for survival. First, the limitations of psychoanalysis and behaviorism and considered and recent studies on exploratory behavior are discussed. The author concludes with an application of these concepts of competence to practical work.

Whiteman, M. Children's conceptions of psychological causality. Child Development, 143-155.
This study was designed to explore the feasibility of using interviews with children at the 5-6 year old range and the 8-9 year old range to study developing conceptions of psychological causality. Results are inconsistent with Piaget's distinction between the "intuitive" child (4-7 years) and the "concrete-operational" (7-11 years). The author concludes that behavioral correlates need further study.

Wiggens, J. S., & Winder, C. L. The peer nomination inventory: An empirically derived sociometric measure of adjustment in adolescent boys. Psychological Reports, 1961, 9(3), 643-677.
This study attempts to develop a psychometrically-sound, narrow band adjustment measure for groups of pre-adolescent boys. The method was described as an adaptation of Hartshorne and May's "guess who" technique for assessing social reputation by means of sociometric peer ratings. Psychometric properties of inventory scales are presented in detail sufficient enough to enable the reader to evaluate the utility of employing the Peer Nomination Inventory for research purposes.

Wisser, R. E. A comparison of the effects of three types of counseling upon the adjustment of fifth grade boys. Dissertation Abstracts International, 1971, 31(7), 3274-A. (Abstract)

Wlodkowski, R. J. The effect of dissonance and arousal on assignment performance as they relate to student expectancy and teacher support characteristics. The Journal of Educational Research, 1973, 67(1), 23-28.
This field experiment examines student expectancies based on self-evaluation of past performance and personal ability. Expectancy is operationally defined for this study and the method for completing the field experience for this study is discussed. The primary finding for this research is that committed student expectancy as a variable, when coupled with the variable of dissonant teacher support does not form a functional combination which significantly relates to improved student performance. The conclusion is that teachers have to examine other variables in addition to student expectancy in order to determine how they can most effectively report their own expectancies toward students if they desire to improve students' academic performance.

Wood, R. H. Three environmental press variables and their relationship to coping behavior and creativity in children. Dissertation Abstracts International, 1970, 30(12), 5306-5307-A. (Abstract)

Wright, B. A. Helping children understand why they feel as they do. NEA Journal, 1960, 49(6), 24.
This article is written by a thrid grade teacher who is reporting on the effects of a psychiatrist's talk to her class. The author reported that her children approached problems in human relationships with a depth of understanding almost unbelievable for their ages. The author calls for increased usage of psychologists and psychiatrists in the field of education.

Yamamoto, K. Relationships between creative thinking abilities of teachers and achievement and adjustment of pupils. The Journal of Experimental Education, 1963, 32(1), 3-25.
Exploration of possible relationships between creative thinking abilities on the part of teachers and their effectiveness in classroom teaching is attempted in this study. Several hypotheses are made and the design and procedures employed to test these hypotheses are described. Results are discussed as they relate to each individual hypotheses. The findings make it clear that the role of creative thinking in real educational settings is not a simple one, high creativity among teachers and pupils did not usually result in better pupil achievement or favorable adjustment.

Zimmerman, B. J. The relationship between teacher classroom behavior and student school anxiety levels. Dissertation Abstracts International, 1969, 29(11), 3886-A. (Abstract)

Zimmerman, B. J. The relationship between teacher classroom behavior and student school anxiety levels. Psychology in the Schools, 1970, 7(1), 89-93.
On the basis of past research, this study proposes and tests the conclusion

that the net level of teacher reward would correlate inversely with the classroom level of SSA (student school anxiety). The implications of these findings are manifold, but of primary importance is the necessity for teachers to recognize the atmosphere that their reinforcing behavior creates in their classroom and that this atmosphere directly relates to the SSA.

Zodikoff, D. H. A study of social attitudes of fourth, fifth, and sixth grade pupils. Cortland, New York: State University of New York, Cortland College, 1967. (ERIC ED 042 184.) (Abstract)

Zuckerman, M. Dimensions of sensation seeking. Journal of Consulting and Clinical Psychology, 1971, 36(1), 45-52.
The results of a study attempting to develop new scales representative of hypothesized dimensions of sensation seeking are revealed in this study. The method for developing these new scales is described and results are discussed. The scales are presented and the author states that at present, one can only speculate on the reliability of these new scales.

ANNOTATED REFERENCE LIST

Ethnic Bias and Achievement Testing - Peck

Adler, S. Data gathering: The reliability and validity of test data from culturally different children. *Journal of Learning Disabilities*, 1973, *6*(7), 429-434.
The data gathered from the tests of culturally different children is often inaccurate for the following reasons: inappropriate and non-reflective tests, motivation problems among testees, communication and personality difficulties between the tester and the testee, and test taking apprehension. The tests of culturally different children are more illustrative of children's abilities if results are assessed in relation to peer and standard group performance and if tests are taken under optimal conditions.

Anastasi, A. Some current developments in the measurement and interpretation of test validity. In Anastasi, A. (Ed.) *Testing problems in perspective: 25th anniversary volume of topical readings from the Invitational Conference on Testing Problems*. 1963, 307-317.
Anastasi reviews five developments in the measurement and interpretation of test validity for the 1953-1963 period. The progressions in validity relate to construction validation, decision theory, moderator variables, synthetic validity, and response styles.

Anastasi, A. Some implications of cultural factors for test construction. In Anastasi, A. (Ed.) *Testing problems in perspective: 25th anniversary volume of topical readings from the Invitational Conference on Testing Problems*. 1949, 453-457.
Tests illustrating maximum group differentiation will show how an individual is behaviorally identified with a particular group. Aside from cultural differences, some factors that lower test scores may indicate problems that would hamper an individual's educational and vocational progress. The retention of questions that demonstrate cultural differences depend upon correlation with specified criteria.

Anderson, R. C. How to construct achievement tests to assess comprehension. *Review of Educational Research*, 1972, *42*(2), 145-170.
This paper examines the fundamental construction, goals, accomplishments, and failures of achievement tests in measuring comprehension. The author reports that various types of questions are not effective measures of comprehension because these questions are not specifically for comprehension, but several different measures of achievement.

Arnold, R. D. Reliability of test scores for the young bilingual disadvantaged. *Reading Teacher*, 1969, *22*(4), 341-345.
Achievement tests normed for middle-class, Anglo American population can be reliable indicators of achievement for other populations. In a San Antonio Research Project Study, the Metropolitan Achievement Tests and

the Inter-American English Reading Tests werefound to be reliable indicators (with certain modifications) for bilingual Mexican-American population.

Bartel, N. R., Grill, J. J., & Bryen, D. N. Language characteristics of Black children: Implications for assessment. Journal of School Psychology, 1973, 11(4), 351-364.
The authors comprehensively review the literature concerning the language characteristics of Black children. They conclude that there are still four problems that confront educators in this area: Black children speak their own dialect which differs from Standard English, the issue of language "deficits" has not been resolved, present tests of ability and achievement are inappropriate for speakers of Black English, and currently, there are no existing tests to assess the linguistic competence of Black children.

Bernadoni, L. C. The testing of bicultural children. Report for the Arizona State Department of Public Instruction, Phoenix: Arizona State Department of Public Instruction, Division of Indian Education. (ERIC ED 077 977.) (abstract)

Buchanan, R. G. The effect of cultural deprivation on test-taking approach as indicated by response style to multiple-choice questions. Dissertation Abstracts International, 1969, 29(9), 2994-2995-A. (abstract)

Bucky, S. F., & Banta, T. J. Racial factors in test performance. Developmental Psychology, 1972, 6(1), 7-13.
Presented is a comparison of ways in which Negro and white experimenters interact with Negro and white subjects. The results from the experimental tests were a) white subjects tested by white experimenters scored higher than any other group; b) white subjects tested by Negro experimenters were unable to perform as well on the tests; c) with the exception of the curiosity tests, Negro subjects tested by Negro experimenters scored lowest on tests; and d) Negro subjects tested by white experimenters scored higher that Negro subjects tested by Negro experimenters. Subjects were rated on motor impulse control, reflectivity, familiar figures, innovative behavior, and curiosity.

Costin, F. Three -choice versus four - choice items: Implications for reliability and validity of objective achievement tests. Educational and Psychological Measurement, 1972, 32(4), 1035-1038.
The results of this study confirm the practical benefits of three-choice items while maintaining both the reliability and validity of classroom achievement tests. There is an increase in the efficiency in which information can be assessed (students can generally complete three-choice items more rapidly than four-choice ones) and a less difficult and time consuming job for the teacher.

Cronbach, L. J. Norms and the individual pupil. In Anastasi, A. (Ed.) Testing problems in perspective: 25th anniversary volume of topical readings from the Invitational Conference on Testing Problems, 1948, 265-268. Differentiated norms should be used in testing whenever there is a significant correlation between an achievement test and a sensible reference variable. Differentiated norms can reduce the subjectivity of pattern interpretation.

Darlington, R. B. Another look at "cultural fairness." Journal of Educational Measurement, 1971, 8(2), 71-82. The term "cultural fairness" in testing is defined, explored and ultimately rejected. "Cultural fairness" is exchanged for the broader and more useful "cultural optimality." The question of whether or not a test is culturally optimum can be divided into two: a subjective, policy-level question concerning the optimum balance between criterion performance and cultural factors and a purely empirical question concerning the test correlation with the culture-modified criterion variable and whether or not that correlation can be raised.

Davis, C., & Fanton, J. H. A delinquency predictive scale for Thorne's Intregration Level Test Series. Journal of Clinical Psychology, 1972, 28(2), 186-190. This is an attempt to develop a delinquency predictive scale for Thorne's Integration Test Level Series by comparing the scores of incarcerated youthful offenders and high school students. 465 items were tested and 29 were found to successfully differentiate between the two test groups. These 29 items were gleaned and validated on similar groups. The validation compared favorably with the original findings.

Dubin, J. A., Osburn, H., & Winich, D. M. Speed and practive: Effects on Negro and white test performances. Journal of Applied Psychology, 1969, 53(1), 19-23. In a study of test performances by white and Negro high school students, the hypotheses that a) extra pretest practice; b) extra testing time; and c) extra practice and testing time, would improve the mental test ability of disadvantaged students are ultimately disproved. The results suggest that the testing procedure itself does not discriminate between racial groups nor between culturally advantaged or disadvantaged students.

Ebel, R. L. Why is a longer test a more reliable test? Educational and Psychological Measurement, 1972, 32(2), 249-253. In an attempt to define the relationship between test length and validity, two theories are proposed. Both theories are discussed in relationship to the mental test theory and the Spearman-Brown formula.

Faggen-Steckler, J., McCarthy, K. A., & Tittle, C. K. A quantitative method for measuring the "bias" in standardized tests. Journal of Educational Measurement, 1972, 11(2), 151-161. Eight standardized tests are examined for sex imbalance and stereotyped representations of women in item content. A quantitative method, based on the frequency counts of male and female nouns and pronouns, is used. The results show that sex imbalance in these tests is due to subjective choices of content area and gender forms made by test writers and not to a sexist structure in the English language.

Findley, W. G., & Bryan, M. M. Ability grouping: 1970-III. The problems and utilities involved in the tests for grouping children with limited backgrounds, and alternative strategies to such grouping. Report for the Office of Education (DHEW), Athens: Georgia University, 1970. (ERIC ED 048 383.) (abstract)

Flaugher, R. L. Bias in testing: A review and discussion. TM report no. 36. Contract No. OEC-0-70-3797-519, Princeton, New Jersey: ERIC Clearinghouse on tests, measurement, and evaluation, 1974. (ERIC ED 099 431.) (abstract)

Fowles, B. R., & Kimple, J. A. Language tests and the "disadvantaged" reader. Reading World, 1972, 11(3), 183-195.
The performance of minority children on standard tests that measure various aspects of linguistic skill are examined from two points of view: the need for "culture free" tests and the failure of tests to adequately measure bahavior. The authors conclude that none of the tests studied indicate a child's level of linguistic functioning. This is especially true for a child who finds testing conditions intimidating or test items irrelevant to his lifestyle.

Frisbie, D. A. Multiple choice versus true-false: A comparison of reliabilities and concurrent validities. Journal of Educational Measurement, 1973, 10(4), 297-304.
Multiple-choice and true-false tests are empirically compared for concurrent validities and reliabilities in measuring comprehension. The data does not support the theory that true-false tests measure achievement as well as multiple-choice tests.

Frisbie, D. A. The effect of item format on reliability and validity: A study of multiple-choice and true-false achievement tests. Educational and Psychological Measurement, 1974, 34(4), 885-892.
The present study of nonurban high school students was designed to control the theoretical range on multiple-choice and true-false achievement tests, and in part, to replicate portions of an earlier study (1973) by the author. The data reveal that "a) subjects attempted three true-false items in the time required to complete a pair of multiple-choice items, b) multiple-choice achievement tests are more reliable than true-false tests which require an equal amount of testing time, and c) multiple-choice and true-false tests designed to measure the same objectives do tend to measure the same characteristics."

Gay, G., & Abrahams, R. D. Does the pot melt, boil, or brew? Black children and white assessment procedures. Journal of School Psychology, 1973, 11(4), 338-340.
While developing testing procedures, educators and psychologists must be totally cognizant of Black culture dynamics that are manifested in Black behavioral patterns. The authors explore Black attitudes in a testing or assessment situation and conclude that in general, Black children's abilities are underestimated, the value of their existential experiences ignored, their attitudes misunderstood, their perspectives disregarded, and their behavior misinterpreted because the assessment criteria used are derived from cultural norms foreign to them.

Green, D. R. Biased tests. Report for CTB/McGraw-Hill Place, 1971. (ERIC ED 054 208.) (abstract)

Green, D. R. Racial and ethnic bias in test construction. Final report. Contract No. OEC-9-70-0058(057), Monterrey, California: CTB/McGraw-Hill Place, 1971. (ERIC ED 056 090.) (abstract)

Green, D. R., & Draper, J. F. Exploratory studies in bias in achievement tests. Paper presented at the American Psychological Association annual convention, Honolulu, Hawaii, 1972. (ERIC ED 070 794.) (abstract)

Green, D. R., & Roudabush, G. E. An investigation of bias in a criterion-referenced test. (ERIC ED 113 379.) (abstract)

Hammill, D., & Wiederholt, J. L. Appropriateness of the Metropolitan Tests in an economically deprived, urban neighborhood. Psychology in the Schools, 1971, 8(1), 49-50.
In response to the reported frustration of inner city youngsters who take the Metropolitan Achievement or Readiness Tests, the authors test a group of kindergarten and first grade pupils in Philadelphia. Statistical analyses indicate that reliability of the Word Meaning (MRT) and Listening (MRT) subtests are too low for diagnostic usefulness. Finally, the Metropolitan Tests were found to be unsatisfactory achievement tests for urban children.

Haynes, J. M. Educational assessment of immigrant pupils. Report for the National Foundation for Educational Research in England and Wales. New York: Fernhill House, Ltd., 1971. (ERIC ED 064 293.) (abstract)

Henderson, N. B., & et al. Effectiveness of the WISC and Bender-Gestalt Test in predicting arithmetic and reading achievement for White and Nonwhite children. Journal of Clinical Psychology, 1959, 25(3), 268-271.
The Bender-Gestalt Test was studied for its differential effectiveness in predicting the arithmetic and reading achievement of white and nonwhite seven year olds. The Bender-Gestalt scores for both groups are presented in table form and compared to the groups' WISC and WRAT for each group more effectively than the Bender-Gestalt Test.

Hoepfner, R., & Strickland, G. P. Investigating test bias. Report No. CSE-74, Los Angeles: California University, Center for the Study of Evaluation, 1972. (ERIC ED 066 443.) (abstract)

Holly, K. A., & Michael, W. B. Comparative validities and testing times for composites of structure-of-intellect tests and previous mathematics grades with composites of traditional standardized test measures and previous mathematics grades in prediction of success in high school algebra. Educational and Psychological Measurement, 1973, 33(4), 915-919.
This is a continuation of Holly and Michael's 1972 study of the relationship of measures in Guilford's structure-of-intellect factor abilities to performance in high school algebra. Specific information regarding comparative validities and testing time requirements for selected composite predictors within four variable categories is provided in table form. The test validity analysis shows that the structure-of-intellect tests offer promising alternatives to the traditional tests now used to predict success in modern algebra.

Hurt, M., & Mishra, S. P. Reliability and validity of the Metropolitan Achievement Tests for Mexican-American children. *Educational and Psychological Measurement*, 1970, *30*(4), 989-992.
The Metropolitan Achievement Tests were administered to underprivileged Mexican-American fourth and fifth grade Title I students in order to investigate test validity and reliability for bilingual children. High validity and reliability resulted for this particular group.

Huck, S. W., & Bowers, N. D. Item difficulty level and sequence effects in multiple-choice achievement tests. *Journal of Educational Measurement*, 1972, *9*(2), 105-111.
The sequence effect of test items in multiple-choice tests is researched in two experiments. The difficulty of items that preceed the "p"-level are checked for bias. Study results do not support the hypothesis of bias in multiple-choice sequencing.

Jacobs, S. S. Bias in the keying of standardized tests: A re-examination. *Journal of Educational Measurement*, 1968, *5*(4), 335-336.
Thirty standardized tests and fifty-seven subtests measuring aptitude, ability and achievement, were investigated for biased keys. Only three subtests showed significant bias.

Jensen, A. R. How biased are culture loaded tests? *Genetic Psychology Monographs*, 1974, *90*(2), 185-244.
Copious tables and graphs clearly depict the analyses and results of three studies in which the culture-loaded Peabody Picture Vocabulary Test and the culture-reduced Raven's Progressive Matrices (colored and standard forms) were compared to various internal criteria of culture bias as reflected in the test results of three ethnic groups: Anglo-American, Black, and Mexican-American. A study of variance revealed little interaction in Ethnic Group x Items, but an index of item bias indicates that the Raven was less biased that the PPVT for the Mexican-American group. The Group x Items interaction was shown to be largely attributed to differences in mental maturity. The various item analyses of present studies do not indicate cultural bias against Blacks in either the Raven or the PPVT.

Jensen, A. R. Test bias and construct validity. Paper presented at the annual meeting of the American Psychological Association, Chicago, Illinois, September 1975. (ERIC ED 114 415.) (abstract)

Klosner, N. C., & Gellman, E. D. The effect of item arrangement on classroom test performance: Implications for content validity. *Educational and Psychological Measurement*, 1973, *33*(2), 413-418.
In an effort to determine the degree of interaction between item arrangement and achievement level in tests, this study compared three item arrangements on a graduate classroom test: arrangement by subject matter, arrangement by ascending difficulty, and arrangement by ascending order of difficulty within subject matter subtests. Although item arrangement did not prove significant, it appears that item arrangement may be an important factor in performance for low-achievers.

Knowles, R. T., & Shah, G. B. Cultural bias in testing: An exploration. Journal of Social Psychology, 1969, 77(2), 285-286.
Cultural bias in testing is studied through the results of a non-verbal intelligence test (Shah's non-verbal group test of intelligence) administered to groups of eight year olds: Indian children residing in India, Negro children in inner city Detroit, white children in suburban Detroit, and children attending the University of Michigan Laboratory School. The scores of the inner city and Indian children were similar and were significantly lower that the other groups' scores. The authors conclude that " in abilities measured, a group of American children living in the inner city a few miles from other American children are as different as children thousands of miles away in a different culture.

Lennon, R. T. The testing of Black students: Dilemmas for test publishers. In Miller, L. P. (Ed.) The testing of Black students: A symposium. Englewood Cliffs, New Jersey: Prentice-Hall, 1974, 60-66.
In response to accusations of bias in standardized tests, a publishing representative addresses the various problems that confront test makers; shoudl there be separate tests for minority children, separate norms, and uniform testing procedures. The failure of publishers to meet the testing needs of minority students result from a variety of issues: technical difficulties in establishing norms and completely uniform testing procedures, reluctance to categorize, process, and release potentially hazardous data pertaining to race and the economic unfeasibility of developing experimental minority testing materials.

Linden, K. W. Test bias: Fuss n' facts. Measurement and Evaluation in Guidance, 1974, 7(3), 163-167.
This is a review of recent articles on test bias against women and minorities. Although tests are seen as inherently biased, the authors propose that publishers and test developers be pressured to reduce bias in their materials, and test evaluators and interpreters consider the presence of bias when interpreting test scores. They conclude that careful selection of tests with regard to relevance and adequacy of norms and reliability and validity of scores for given populations is the best method to reduce bias and misinterpretation.

Linn, R. L., & Werts, C. E. Considerations for studies of test bias. Journal of Educational Measurement, 1971, 8(1), 1-4.
Current methods of predicting test bias in standardized tests fail to include criterion related variables that reflect group differences. Currently, test predictions of Blacks' educational performance has been overpredicted. Inquiries into test bias would be more effective if problems such as bias within criteria, difference within-group slopes and reliabilities, and small samples of minority students were considered when predictive bias is studied.

Mangold, S. M. C. Methods of measuring the reliability of tests. The Catholic University of America Educational Research Bulletins, 1927, 2(8), 2-32.
Ways to measure test reliability can be divided into two basic methods; statistical and experimental. Experimentally, tests can be evaluated by measuring the results of two halves of the same test, comparing the scores of two applications of the same test, or analyzing the results of two different tests with similar form and criteria. Statistically, tests can be measured by correlation. Each mode of

evaluating test reliability is discussed at length (especially statistical formulas) comparing inherent weaknesses and strengths.

Mathis, H. I. The disadvantaged and the aptitude barrier. Personnel Guidance Journal, 1969, 47(5), 467-472.
Current aptitude tests do not adequately measure the present skills or potential of an underpriviledged applicant because of ambiguous criteria and inadequate compensation for individual differences. This problem can be corrected if tests are standardized on the minimum performance level required to perform a job. A good battery would test job related skills such as educational achievement, dexterity, and occupational skills.

Nolan, J. S., & Jacobson, J. The California Comprehensive Test of Basic Skills: A predictor of success for high school freshmen. Educational and Psychological Measurement, 1972, 32(2), 451-452.
This is a data summary on the validity of the subtest and total battery scores of the California Comprehensive Test of Basic Skills and the total IQ Scale of the California Short-Form Test of Mental Maturity in relation to academic success in English and mathematics at the ninth grade level. The brief analysis conclueds that Achievement Test scores are more valid grade predictors than scholastic aptitude or general intelligence tests.

Oakland, T., & Weilert, E. The effects of test-wiseness materials on standardized test performance of preschool disadvantaged children. Paper presented at the annual meeting of the American Educational Research Association, New York, February 1971. (ERIC ED 047 050.) (abstract)

Pascale, P. J., & Jakubovic, S. The impossible dream: A culture-free test. 1971. (ERIC ED 054 217.) (abstract)

Pikulski, J. Predicting sixth grade achievement by first grade scores. Reading Teacher, 1973, 27(3), 284-287.
The Pinter Cunningham Intelligence Test, The Murphey Durrell Reading Readiness Test and the Metropolitan Reading Readiness Test are studied for their ability to predict a child's reading and spelling achievements at the end of the sixth grade for two groups of children: Those who learned their language skills with basal readers and those who learned through an integrated language arts program. The results of the initial reading readiness tests of the children at the first grade level corresponded well with their achievement scores at the end of the sixth grade.

Pugh, R. C., & Brunza, J. J. Effects of a confidence weighted scoring system on measures of test reliability and validity. Educational and Psychological Measurement, 1975, 35(1), 73-78.
Three forms of a vocabulary test (taken from the I.E.R. Intelligence Scale) were given to graduate students and weighted against three personality measures in order to test the validity of a confidence scoring system. Using a confidence system, based on the increase in reliability, no significant change in the relative difficulty of test items and no detection of personality bias resulted; however, validity was improved.

Reilly, D. H. Beyond the test score. Paper presented at the workshop on assessing culturally different Black and Indian students, Greensboro, North Carolina, November 1974. (ERIC ED 110 878.) (abstract)

Reilly, R. R. A note on minority group test bias studies. Report No. ETS-RB-73-15, Princeton, New Jersey: Educational Testing Service, 1973. (ERIC ED 077 964.) (abstract)

Scheungman, J. A new method of assessing bias in test items. Paper presented at the annual meeting of the American Educational Research Association, Washington, D. C., 1975. (ERIC ED 106 359.) (abstract)

Shutt, D. L., & Hannon, T. A. The validity of the HNTLA for evaluation of the abilities of bilingual children. Educational and Psychological Measurement, 1974, 34(2), 429-432.
In an effort to find a better way to place bilingual students in special education classes, the Hiskey-Nebraska Test of Learning Aptitude was administered to fifty Navaho and fifty Mexican-American students. Pantomine instructions were given in order to de-emphasize language. It was concluded that the HNTLA is a valid placement instrument.

Solomon, A. The effect of answer sheet format on test performance by culturally disadvantaged fourth grade elementary school pupils. Journal of Educational Measurement, 1971, 8(4), 289-290.
In a study designed to explore the effect of an answer sheet format on culturally deprived fourth graders, the author found that the type of answer sheet format had no effect on student test performance.

Temp, G. Validity of the SAT for blacks and whites in thirteen integrated institutions. Journal of Educational Measurement, 1971, 8(4), 245-251. This statistical investigation of the predictive validity of the SAT for blacks and whites contends that a) single regression plane does not effectively predict freshman GPA; nevertheless, b) if prediction of GPA from SAT scores is based upon prediction equations suitable for majority students, then black students are predicted to do as well or better than they actually do; but c) the multiple regression prediction for blacks was lower in magnitude than for whites.

Test bias: A bibliography. Contract No. OEC-0-70-3797, Princeton, New Jersey: ERIC Clearinghouse on Tests, Measurements, and Evaluation, 1971. (ERIC ED 051 312.) (abstract)

Tittle, C. K. Sex bias in educational measurement: Fact or fiction? Measurement and Evaluation in Guidance, 1974, 6(4), 219-225. Educational measurement in the areas of achievement and vocational testing shows sex bias. The practioner who professionally uses tests in measurement and evaluation can help eliminate sex bias by being aware of existing test bias, encouraging the development of unbiased measurement instruments, and insuring that the use of tests occur in a non-stereotyped or unprejudiced manner.

Williams, R. L. The problem of match and mis-match in testing black children. 1970. (ERIC ED 073 131.) (abstract)

Williams, R. L. The problem of match and mis-match in testing black children. In Miller, L. P. (Ed.) *The testing of black children: A symposium*. Englewood Cliffs, New Jersey: Prentice-Hall, 1974, 17-30.
The paper reviews previous studies of standardized tests and concludes that test bias is primarily a problem of match and mis-match. Tests do not always predict academic success efficiently, especially in the case of minority children because of built-in unfair matching/mis-matching characteristics in tests and criterion. To correct the problem of inaccurate evaluations of children's abilities, important moderator variables should be used as indicators of tests and criterion characteristics rather than as personal characteristics.

Wofford, J. C., & Willoughby, T. L. The effect of test construction variables upon test reliability and validity. *California Journal of Educational Research*, 1969, *20*(3), 96-106.
Variables that influence test construction and evaluation are explored in this study. Item difficulty, test length, size of upper and lower criterion groups, item selection methods, and confidence levels are analyzed statistically. Several statistical methods are evaluated for interpretation efficiency.

Zirkel, P. A. Spanish-speaking students and standardized tests. Report for the New York State Education Department, Division of General Education, 1972. (ERIC ED 080 594.) (abstract)

REFERENCE LIST

PECK - Interaction Process Analysis Search

Alexander, L., Elsom, B., Means, R., & Means, G. Achievement as a function of teacher-initiated student-teacher personal interactions. Psychological Reports, 1971, 28(2), 431-434

The purpose of the authors' study was to discern whether cumulative GPA achievement could be related to the degree students were known personally by the instructor, and to examine the overall effect of teacher-initiated student-teacher personal interactions. The hypothesis of the study - that student achievement increases are due to concentrated teacher-initiated teacher-student relations - was proven by a 2 x 2 analysis of variance design that showed achievement scores of both high-GPA and low-GPA treatment groups increased with an increase in personal interest on the part of the instructor, though high-GPA groups were affected less by such interest.

Bondi, J. Verbal patterns of teachers in the classroom. National Elementary Principal, 1971, 50(5), 60-61.

Using systematic observations of classroom interaction, the author defined 5 patterns of teacher behavior that show promise as learning devices for preservice and inservice teachers. The patterns are: a) the excessive teacher-talk pattern whereby the instructor talks approximately 2/3 of class time; b) recitation--question/answer sequences which apparently yield only 2 assets--verbal memory and superficial judgement; c) teaching in terms of transition from one unit to another rather that within a given unit of study; d) teacher acceptance, that shows enhanced learning results; e) teacher inflexibility, a pattern that makes instructors highly predictable. The author concludes that modifications of these patterns for use in preservice and inservice training, would maximize teacher effectiveness.

Calonico, J. M., & Calonico, B. A. Classroom interaction: A sociological approach. Journal of Educational Research, 1972, 66(4), 165-168.

Operating on the assumption that the classroom is a sophisticated normative social system, the authors present a sociological approach to the study of an elementary class, with regard to the interplay of interpersonal group forces that mediate cognitive and effective behavior. Various methods, including observations, interviews, and sociometric techniques are used. During the development of interaction systems, Bales' interaction process analysis (IPA) is employed to direct the study toward an analysis of the student social system that excludes the teacher. The results indicate that a direct relationship exists between frequency of interaction and positive sentiments among pupils, positive sentiments are expressed in activities beyond the activities of the external system, and those who show negative sentiments receive negative sentiments.

Campbell, J. R. Cognitive and affective process development and its relation to a teacher's interaction ratio. Journal of Research in Science Teaching, 1971, 8(4), 317-324.
The research objective was to determine a relationship between cognitive and affective process development of junior high school low achievers and the indirect/direct teaching behaviors of instructors. Flander's interaction analysis system and affective domain questionnaires were the methods used to gather data. Results indicate that an indirect method of instruction consistently correlates with higher levels of achievement and attitude development.

Cohen, E. G. Sociology and the classroom: Setting the conditions for teacher-student interaction. Review of Educational Research, 1972, 42(4), 441-452.
In discussing the sociological contributions to the study of classroom interaction, the author focuses her attention to understanding the relationship between classroom teaching and student growth or learning and non-individual factors arising from formal and informal social structuresof the classroom (e.g., examining the effects of learning on the development of status systems in the classroom). Findings suggest that the vast variability in teaching practices will preclude the possibility of consistent relationships between measures of teacher-student interaction and student learning unless a specific instructional system directs teacher behavior. The author briefly outlines other research in the field, and proposes more systematic and controlled studies on teacher effectiveness. A 37 item bibliography is included.

DeLandsherre, G. L. How teachers teach: Analysis of verbal interaction in the classroom. Classroom Interaction Newsletter, 1971, 7(1), 40-56.
Based on the analysis system of M. Hughes and associates, DeLandsherre presents his own system for analyzing verbal interaction. After extensive comparison of his system and Flander's revised system, followed by empirical implementation of the systems in five research projects, DeLandsheere concludes that the two systems are compatible. Data drawn from both systems yield the same results: poor teacher quality with consistent independent variables.

Freyberg, P. S., & Katterns, R. W. Increasing teacher sensibility using interaction analysis. Classroom Interaction Newsletter, 1971, 7(1), 25-29.
As a part of pre-service learning programs, the authors suggest that students become more aware of interactive teaching behaviors, verbal and non-verbal, to develop sensitivity towards various teaching patterns. In addition, students should know and understand the theoretical principles of teaching to apply those principles effectively. Flander's Interaction Analysis System, the Planning-Teaching Observing Cycle, and the Clinical Analysis Process are suggested as useful systems in teacher training.

Good, T. L., & Brophy, J. E. Analyzing classroom interaction: A more powerful alternative. OEC No. 6-10-108, Austin, Texas: Research and Development Center for Teacher Education, 1969. (ERIC ED 041 837.)
Because interaction analysis of the classroom as a unit implies two questionable assumptions - that interaction variables are to be conceptualized between teacher and student as a group, and that the consistency of teacher behavior makes individual differences insignificant - the authors discuss the advantages of treating the individual student as the unit of analysis in classroom studies. The shift to an individualized teacher-child dyad would focus attention to individual and group differences within the classroom, establishing a cause-effect mechanism in relation to teacher and student behavior. An identification and measure of behavioral mechanisms underscoring teacher expectations for student

performance is explored. A 38 item bibliography is included.

James, H. H. Effects of supervisory methods upon development of a teaching strategy by student teachers. Journal of Research in Science Teaching, 1971, 8(4), 335-338. The purpose of the study was to delimit one teaching strategy, traditional supervision, and apply two supervisory approaches - expository-direct and inductive-indirect - to determine their effect on the development of classroom techniques by student-teachers. The I-I approach was chosen to be developed, with feedback as the basic variable and teaching performance as the dependent variable. The instrument implemented as a criterion measure was the Teaching Strategies Observation Differential (TSOD). Empirical data showed traditional supervision supplemented with self-confrontation and self-evaluation opportunities facilitated the I-I teaching strategy to a higher degree that traditional supervision supplemented with viewing experienced teachers using the desired teaching technique or supervision alone.

Jangira, N. K. Research in classroom interaction analysis in India. Classroom Interaction Newsletter, 1971, 7(1), 68-73. Research studies in Classroom Interaction Analysis (CIA) are classified into three broad catagories: a) studies linking presage variables and teacher influence; b) studies linking teacher influence in the classroom and product variables; c) studies attempting modification of the classroom behavior of teachers. To arrive at a meaningful conclusion with regard to CIA, the author suggests studies with a micro-analysis approach that involve more presage variables: teacher personality characteristics, educational and cultural background, professional experience. Further study of teacher influence in relation to situational variations is recommended.

Kester, S. W., & Letchworth, G. A. Communication of teacher expectations and their effects on achievement and attitudes of secondary school students. Journal of Educational Research, 1972, 66(2), 51-55. The authors' hypothesis, that teacher expectancy of student ability is altered by prior knowledge of student IQ, found no support in the study; however, teacher experimental manipulation of expectancy was achieved. The Category System of Observation, Chapple's technique, the Otis Lennon Mental Ability Tests, and several evaluative semantic differential scales were given to two groups of seventh grade students. Data gathered from these instruments indicated no significant differences in the performance of the experimental ("bright") and control ("average") group, as shown by a 2 x 2 analysis of variance. Further analysis showed teachers spend more time communicating to experimental students.

Klein, S. S. Student influence on teacher behavior. Classroom Interaction Newsletter, 1970, 6(1), 34-39. Research was conducted to investigate whether or not student classroom behaviors influence teachers' behaviors, and to determine if the direction of change is predictable. Flander's Interaction Analysis was used to categorize teachers' verbal behaviors, and experimental instruments were used to categorize teacher-student nonverbal behaviors. Empirical data revealed teacher behavior is more positive during periods of positive student behavior, and more negative during periods of negative student behavior. The study concluded that student behaviors influence the verbal and nonverbal behaviors of teachers, and the direction of change was predictable.

Mueller, R., & Baker, J. F. Games teachers and student play. *Clearing House*, 1972, *46*(8), 493-496.
The purpose of the article is "to provide a working format, or structure, for a positive approach toward helping the teacher understand and control classroom discipline at the psychological verbal level." The authors explore the communication flow involved in education and emphasize that there is a proper time and place for each verbal level. In summary, the authors state that "students instinctively respect and interact positively with teachers who do not play games."

Nolle, D. B. Alternative path analytic models of student-teacher influence: The implications of different strokes for different folks. *Sociology of Education*, 1973, *46*(4), 417-426.
The article deals with the expanding literature on the student-teacher influence process and explores the implications of five empirically quantified causal models. The author includes a description of the study sample, measurements, preliminary statistics and analytical procedures. Since the results from the models were diverse and subject to different interpretation. the author cautions against placing too much emphasis on simplistic models to achieve an understanding of the student-teacher influence process.

Schneyer, J. W. Classroom verbal interaction and pupil learning. *Reading Teacher*, 1970, *23*(4), 369,371.
To investigate the idea that "teacher characteristics and teaching styles may play a vital role in determining the level of pupil reading achievement," various systems for examining verbal interaction in the classroom are explored, as well as, systems for studying the relationship between teaching strategies and cognitive processes. The author concludes that these systems may be used to provide a closer look at the relationship between teachers and pupils during the learning process.

Snow, S. G. Correlates of faculty-student interaction. *Sociology of Education*, 1973, *46*(4), 489-498.
The paper presents a study made at the University of California at Davis, that explores the phenomenon of student-teacher interaction. A full description of the methodology is included. The results reveal the poignant differences between high-contact teachers and low-contact teachers. The high-contact teachers dealt almost exclusively with issues affecting a student's growth, while the low-contact teachers dealt more with the student in a "professional" manner. The author concludes that style is the primary difference between high-contact and low-contact faculty members, and high-contact teachers take an active role in developing meaningful relationships with students.

Stanton, H. E. Teaching methods and student personality - the search for an elusive interaction. *Instructional Science*, 1974, *2*(4), 477-501.
Support for the hypothesis that different teaching strategies affect student learning is evident in the article. The author describes "a programmatic series of studies using two approaches to personality measurement, purpose-concealed and face-valid, and two instructional approaches, lecturing and independent study. The author concludes that certain personality characteristics in individual students, predispose them to learn more efficiently under one teaching approach than another. A 69 item bibliography is included.

Stouwie, R. J. Inconsistent verbal instructions and children's resistance to temptation behavior. *Child Development*, 1971, *42*(5), 1517-1531.
An analysis of four resistance-to-temptation measures was presented in this report that "investigated the effects of inconsistency of instructions, order of presentation

of instructions, and sex of child upon children's behavior in the resistance-to temptation situation. For each measure, analysis indicates that children who recieve consistent, permissive instruction exhibit the greatest amount of toy-touching behavior, and children who are consistently told not to touch had the lowest amount of toy-touching behavior. A 25 item bibliography is included.

Thisgarajan, S. Interactive teaching and instructional development: Emergence of a new teaching model. Audiovisual Instruction, 1974, 19(1), 6-8.
The paper describes the instructional development (ID) model of interactive teaching. The benefits and steps involved in this model are briefly outlined. The author concludes that even though interactive instructional development is slower that concentrated instructional development, the results are sound, and the element of face-to-face teaching is retained.

Tisher, R. P. Association between classroom behavior and pupils' understandings; An application of the Smith and Meux technique. Classroom Interaction Newsletter, 1971, 7(1), 30-39.
"The purpose of this report is to outline some of the features of an Australian study which used a modified Smith and Meux scheme to classify classroom behavior." These two schemes were found to be particularly appropriate for the study of "cognitive interaction" and for the study of associations between classroom behavior and cognitive growth. A series of hypothesis-testing exercises are described and results show that education by teachers of higher cognitive demands result in higher gains in student performance.

Woodson, M. I. C. E. Programming heuristics for the instructional process. Educational Technology, 1973, 13(3), 48-51.
The article discusses a number of heuristics (self-educating-techniques for the instructional process) and is primarily concerned with the arrangement or computer programming of information. The arrangements include frame by frame, games, drill and practice, problem generators, information retrieval, simulation, and diagnostic testing. The author concludes that since structuring of instruction is necessary for computer-aided instruction, one of the most important outcomes of CAI will be to teach more about conducting instruction. A 29 item bibliography is included.

APPENDIX F

The Impact of Teacher and Student Characteristics on Student Self-Concept, Attitudes Toward School, Achievement, and Coping Skills: A Review of Research

Robert F. Peck, Brad A. Manning and
Donna Buntain

The Research and Development Center for Teacher Education

The University of Texas at Austin

Fall 1977

The research reported herein was supported in part by National Institute of Education Contract NE-C-00-3-0066, Research and Development Center for Teacher Education. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred.

The Impact of Teacher and Student Characteristics on Student Self-Concept, Attitudes Toward School, Achievement, and Coping Skills:

A Review of Research

Robert F. Peck, Brad A. Manning and
Donna Buntain

Introduction

Historically, educational evaluation has shifted emphasis from product to process (i.e., the processes causing an effect). Early evaluation studies, focusing on product, ignored differences in background, interests and abilities of both teachers and students. In studying process, most past research efforts have focused on isolated teacher and student characteristics in relation to learning outcomes. Some researchers now question the utility of studying isolated behaviors, and recommend that behaviors be studied in combination (Gage & Winne, 1975). They posit that interactions of particular teacher and student characteristics affect learning outcomes, and furthermore, that patterns of teacher and student characteristics which affect learning outcomes can be identified. Many authors point out the need for such research (Beilin, 1959; Dunkin & Biddle, 1974; Kohn, 1973; Lazarus, Baker, Broverman & Mayer, 1957; Rosenshine, 1970a, 1970b).

Studies which define patterns of interactive variables hold tremendous promise for teacher education. While the literature is replete with studies identifying specific teacher behaviors which address students' particular affective, cognitive and coping styles (Berenson, 1971; Dunkin & Biddle, 1974; Rosenshine; 1971), very few studies have actually measured the affects on student outcomes of interactive patterns of teacher and student characteristics.

This literature review was conducted to identify research studies that focused on isolated teacher and student characteristics in relation to learning outcomes, as well as studies which have tried to identify combinations or patterns of teacher and student characteristics that interact to affect learning outcomes. The particular teacher and student characteristics selected for study include: self concept, attitudes, achievement, and coping styles. These characteristics are reviewed with regard to available findings on differences across SES, sex, and ethnicity. Our population group is limited to grades 4 - 7, and teachers of these grades.

Self-Concept

General

Self-concept has been defined as "all of the perceptions, ideas, and feelings which each person develops about himself" (Richardson, in Douglas, 1968, p. 108). Self-concept is related to the student's every function, from academic achievement to coping styles, to peer relations, to general adjustment. Although some researchers claim that self-concept is a better predictor of achievement and success in school than is intelligence (Coopersmith & Silverman, 1969), until recently such affective components of learning and teaching have been neglected (Brown, 1975). Some authors state that second to the family, school is the most powerful influence on a child's self-concept (Tanner and Lingren, 1971). Other authors go even further, suggesting that teachers have more powerful influence than parents in shaping student self-concetp, particularly with regard to the child's perception of his/her intelligence and competencies (Richardson, in Douglas, 1968).

The literature indicates that teachers can and do play a significant role in determining both positive and negative student self-concept. SES, sex, and ethnicity also play a part in determining how the child views him/herself. This section will first examine determinants of student self-concept, and then focus on how self-concept is related to other student characteristics.

Determinants of Student Self-Concept

The literature indicates that teachers have a great deal of influence on student self-concept. The teacher has the power to declare the student adequate-worthy or inadequate-unworthy (Richardson, 1968; Hamacheck, in Clarizio, 1969). Teachers are the "significant other" to the elementary child (Sears & Feldman, in Clarizio, 1969), strongly influencing the child's perception of him/herself. Students' perceptions of their teachers' feelings toward them have been found to correlate highly with their own self-concept (Davidson & Lang, 1960); pupils who are disliked by teachers have been found to be dissatisfied with themselves (Lewis, 1964), while students who believe that their teacher likes them are more outgoing, have a better opinion of themselves, and have more self-confidence (deGroat & Thompson, 1949; Dorr et al., 1973). Only one study does not find direct effects of teacher approval on student self-concept (Burrows, 1971).

Changes in specific teacher behaviors have been found to be directly related to changes in student self-concept (Coopersmith & Silverman, 1969). A high degree of private communication with the student correlated highly with positive student self esteem (Spaulding, 1965; Braun, 1973). Use of behaviors such as praise and encouragement enable the student to perceive him/herself favorably (Aspy, Roebuck & Black, 1972). Positive student self-concept is highly related to socially integrative, learner-supportive teacher behaviors (Spaulding, 1965).

Finally, the literature indicates that there is a significant relationship between teacher self-concept and student self-concept. One study reports that teachers inpart their own self-concepts to students (Hamachek, in Clarizio, 1969). In another study, lowering of student self-esteem was found to be directly and significantly related to teacher self-esteem (Edeburn & Landry, 1974).

Self-Concept and SES

Findings relating SES level to self-concept are mixed. Some studies report significant differences in self-concept dependent on SES. Linton (1972) found that high SES was significantly associated with high self-esteem, and low SES with low self-esteem. Other studies, however, report no significant differences in self-concept based on SES, and three studies report that low SES children were found to have higher self-esteem than many middle and high SES students (Johnson, 1971; Trowbridge, 1971, 1972).

Teacher perceptions of students may be determined in part by student SES, and, in turn, teacher perceptions of students affect student self-concept. One study reports that teacher awareness of low student SES may negatively influence teacher assessment of student self-esteem (Schwartz, 1971). This finding is meaningful when considered in conjunction with the finding that teachers who have many years of experience rate students with low self-esteem as undesirable.

In sum, while the self-esteem of low SES students has been found to be related to their perceptions of being respected, accepted, encouraged and understood by teachers, these students frequently have been prejudged by teachers as having low self-esteem, and therefore, undesirable. In turn, they may have been treated as undesirable by teachers, thus resulting in even lower self-esteem among the low SES students. Indeed, children in upper and middle SES groups perceive their teachers as feeling more favorably towards them than toward low SES students (Knowles, 1964).

Self-Concept and Sex

There are few findings concerning differences in self-concept dependent on sex of student. One study reports no differences (Bouchard, 1971), while another study does find differences in self-perceptions of performance (Clifford, 1971).

Several studies report sex-differentiated teacher behaviors which affect student self-concept. Boys receive more attention than girls from female teachers, resulting in lower self concepts for girls (Elaugh & Harlow, 1973; Sears, in Clarizio, 1969). Although, in general, girls percieve teacher's feelings toward them as favorable (Davidson & Lang, 1960), girls have been found to be criticized more than boys for lack of knowledge and skills (Sears & Feldman, in Clarizio), and rejected girls' self-concepts have been found less likely to improve under treatment than rejected boys' self-concept (Amidon & Hoffman, 1965).

Self-Concept and Ethnicity

Ethnicity seems to be directly related to self-esteem. Only one study reports no differences in self-concept due to ethnicity among 6th graders (Guggenheim, 1967). In other studies, results indicate that members of minority groups have lower self-esteem than their Anglo counterparts.

In both 3rd and 6th grades, Chicanos scored consistently low on two measures of self-esteem (Gustafson & Owen, 1971). In another study, middle SES Chicano self-concept was found to be similar to low SES Anglo and low SES Chicano self-concepts (Linton, 1972). Chicanos' mean scores for both self and ideal self were lower than for a comparable non-Chicano group. In comparison with 6th grade Anglo girls, the 6th grade Chicano girls had significantly lower self-concepts (Hishiki, 1969).

Studies comparing self-concepts of Black children with self-concepts of white children are inconclusive. In one study, Black children were found to have a higher self-esteem than white children (Trowbridge, 1972). Tanner & Lindgren (1971) note that Black boys usually have lower self-concepts and lower achievement scores than Black girls. Whether or not a school is segregated may affect the self-concept of Black children. One study reported that Black children attending a segregated school had less positive self-concepts than Black children attending integrated schools (Caplin, 1969).

Self-Concept and Academic Achievement

"A positive concept of self is crucial to success in school and life long learning" (Richardson, 1968, p. 108). Indeed, one survey concludes that a students' feelings toward him/herself and school are more highly correlated with academic achievement than factors such as class size, teacher salary, facilities, or curriculum (Boston, 1969). The importance of self-esteem in relation to learning outcome must be taken seriously be teacher educators. One author suggests that a negative student self-concept may be irreversible by the time the student is in 6th grade (Brown, 1975). Thus, a student with a negative self-concept may suffer from impaired learning throughout his/her life.

Although it is not clear whether a student's academic achievement contributes to his/her self-concept, or vice versa (it probably works both ways), a significant positive correlation has been established between self-concept and academic achievement. High self-concept accompanies high achievement and low self-concept accompanies low achievement (Boston, 1969; Caplin, 1969; Godfrey, 1970; Lewis, 1971; Reimanis, 1972; Travers, 1971). This finding proved to be true for 6th grade inner city Black children (Frerichs, 1970), and Chicanos (Linton, 1972). This finding does not appear to be dependent on sex or ethnic differences (Linton, 1972). Failure to be promoted is associated with low self-esteem among elementary school students. Two failures caused a more negative self-concept than one failure

(White & Howard, 1973).

Teacher influences. Just as self-concept is highly related to student achievement, so is self-concept related to teacher effectiveness, measured in terms of student achievement (Glavin, 1974). Several studies report that teacher self-concept affects student achievement (Glavin, 1974; Koura, 1963; Aspy, 1969). In one study, 3rd grade students with high self-concept teachers achieved greater academic gains than students with low self-concept teachers in several reading skills measures (Aspy, 1969). In another study, a significant relationship was found between teacher morale and student achievement (Koura, 1963). Again, it is not clear which came first, the chicken or the egg, since at least one study reports that teacher self-concept is, in part, determined by student achievement and attitudes toward the teacher (Glavin, 1974).

Self-Concept and Coping Skills

For the purposes of this paper, "coping skills" will be generally defined as the manner in which a person approaches a task or problem. Does the person approach problems directly, or does he/she seek help? How much anxiety do problems arouse? Coping skills will be discussed in greater detail below, in a section entitled "Coping Skills." Only one study reports no significant relationship between coping skills and self-concept (Wood, 1970). Other findings indicate positive correlations between high self-concept and a child's feeling of personal determination and control over his/her environment (Knowles, 1967), or "independence (White, 1969)."

In one study, 5th grade boys with high self-concept demonstrated more curiosity than low self-concept boys (Maw & Maw, 1970). Children with positive self-concepts also cope with effects of distraction, and earn higher grades than students with low self-concepts, who require quieter environments in order to focus on tasks (Hughes, 1968). On measures of external vs. internal control, 6th graders showing internal control have higher self-concepts (both sexes) than students with external control, who indicate negative feelings toward themselves and also toward the teacher (Bryant, 1974).

Faulty perceptions of the self have been found to be related to particular coping characteristics (Purkey, 1967; Bruce, 1958). Sixth grade students with realistic self-concepts demonstrated less anxiety and less insecurity than students with an unrealistic self-concept (Bruce, 1958). In another study, misdirected motivation and consequent school failure was blamed on faulty self-concepts (Purkey, 1967). Soar reports that low SES tends to lead to a decreasing sense of internal control over events, and decreased academic motivation (Soar, 1975).

Teacher influences. Teachers have some influence over student self-concept and coping styles. When a teacher is distant and rejecting, he/she is not likely to enhance self-esteem or motivation (Hamachek, in Clarizio, 1969). Teacher choice of incentives and style of motivation influence the student's self-concept (Richardson, 1968). The teacher must provide an atmosphere which permits cognitive risk-taking, while, at the same time, providing feedback and limits (Spaulding, 1963).

Teacher Expectations and Student Self-Concept

The literature indicates that teacher expectancies influence student self-concept. The child may link his/her sense of self with teacher expectancy (Hughes, 1964), making the teacher a significant determiner of student self-concept. In a study of effects of teacher expectancy on student self-esteem, when teacher expectancies of students were raised, students showed significant gains over controls in measures of self-esteem (Carter, 1971). The influence of the teacher should not be underestimated, and teachers must be aware of biases which may influence a child's self-concept. When teacher behaviors were correlated with teacher expectancies, teachers were found to give more feedback to students who were expected to achieve, and to create warmer social-emotional climates for those students (Silverstein & Krate, 1975). In another study, teachers who did not expect a student to do well viewed the student's behavior and personality with disfavor (Rosenthal, 1973).

Thus, the student who is not expected to achieve does not receive reinforcement and attention which might improve learning outcomes. Furthermore, the student may adopt the teacher's low estimate of her/his work. The lower SES group children may suffer the worst effects of this dynamic; "by expecting and rewarding lower standards for 'lower-class' people, teachers and administrators prepare children for inferior achievement scores" (White, 1969, p. 87).

Not all of this circular relationship can be discussed as irrational prejudice on the part of teachers, although some of that often gets mixed in. To the degree that the low self-esteem of some low SES or minority students is the product of their recognition of the fact of their own low achievement, a teacher who shares that recognition may, with some realism, cast a pessimistic prognosis for them. This would become a vicious circle, however--a gloomy, self-fulfilling prophecy. It is possible for mature, sympathetic adults to simultaneously look realistically at the limited prospects for immediate progress for such students, yet feel and show a genuine optimism about their chances to improve, given practical, constructive help and encouragement. It is not necessary either, to overgeneralize to a negative evaluation of the whole person, from his or her present academic limitations. Indeed, it is precisely children in such a situation who most need teachers who can find honest grounds for insisting that the children really can improve, and help them to do it.

Attitudes

General

Although an attitude may be roughly defined as "a feeling for or against something," it is more rigorously defined as "an emotionalized tendency, organized through experience to react positively or negatively toward a psychological object" (Remmers & Gage, 1955, p. 362), or, "a state of mental and emotional readiness to react to situations, persons or things in a manner in harmony with a habitual pattern or response previously conditioned to or associated with these stimuli" (Wrightsone, Justman & Robbins, 1956)

School is often instrumental in both forming and changing attitudes (Manske, 1936), though findings which directly relate attitude and performance are mixed. This section will focus on teacher and student attitudes towards school, as well as teacher effects on attitudes.

Student Attitudes Towards School

Student attitudes toward school appear to be shaped by factors other than satisfaction with curriculum (Tennenbaum, 1944), involvement in the class (Lahaderne, 1967), or class organization (Riedesel & Burns, 1973), alone. Teachers do play an active role in shaping student attitudes. Students who do not have a positive attitude toward school often mention the teacher in connection with their dislike of school (Tennenbaum, 1944). One study places the blame for poor student attitudes on both parents and teachers (Snyder & Sibrel, 1971). However, teachers may be able to eradicate poor attitudes taught by parents. Children who have positive attitudes toward school report that they and their friends receive a larger portion of rewards in school than outside of school (Baker & Holzworth, 1961).

Attitudes towards school are typically less favorable at the end of the year than at the beginning (Neale, Gill, & Tismer, 1970). Everyone gets tired of school by then. Attitudes also tend to become less enthusiastic with increasing age (particularly if a student is consistently evaluated negatively) (Khan & Weiss, 1973).

Children who are consistently evaluated negatively develop negative attitudes. Some finally become totally alienated from the learning process. On the other hand, children with positive attitudes, who typically have been more successful in school, are the ones who plan to attend college (Staudt, 1967).

Attitudes and SES

Several studies report that student SES affects teacher attitude toward students. That is, teachers tend to view low SES students negatively and high SES students positively (Charters, 1963; Green, Bakan, McMillan & Lezotte, 1973; Khan & Weiss, 1973; Rosenthal, 1973; White, 1969). Passow (1966) concludes that public schools are governed by middle class, white, Anglo-Saxon, Protestant attitudes. Other classical studies support this finding (Davis, 1948; Hollingshead, 1949; Stendler, 1944; Warner et al, 1944). One author suggests that negative teacher attitude toward low SES students have an exaggerated effect, since low SES students are often more dependent on teachers for support and warmth than are middle SES students (Yee, 1968).

Student SES appears to be highly related to student attitudes. One study reports that high SES student leaders had more positive attitudes toward school than low SES leaders in 6th grade (Johnson, 1971). Other studies report no significant differences in attitudes toward school based on SES, but significant differences in attitude toward other people, including peers and teacher, due to SES (Coster, 1958; Khan & Weiss, 1973).

The relationship between location of school and student attitude is not clear. One study reports no significant relationship (McDermott, 1956), while other studies report that children attending schools located in upper SES neighborhoods have more positive attitudes toward teachers and school than children attending schools located in low SES neighborhoods (Neale & Proshek, 1971; Glick, 1970).

Some phenomenon we have informally observed over the years may illustrate why the relation is not simple. In some upper-middle class, white neighborhoods, a number of junior and senior high school students can be observed to feel and act superior to their often lower-middle class teachers. The naïve arrogance they display is thoroughly ungrounded in any accomplishments of their own, of course; but it can be ugly in its negative tone. Conversely, some schools in the low-income neighborhoods led by dedicated, hard-working, sympathetic principals and teachers, can be seen to generate a strong feeling of grateful pride in most students, in "their" school. Such experiences do seem to be exceptions, however, to the general rule and therefore to the more customary correlation of SES with attitudes toward school and schooling.

Student SES, Teacher Attitudes and Achievement

Student SES is a significant determiner of teacher attitudes toward students (White, 1969). The middle SES student is viewed by the teacher as supportive, while the lower SES student is more often viewed negatively (White, 1969; Davis, 1951; Deutsch, 1960), or with little interest (Wrightston, Justman, Robbins, 1956).

When teachers teach effectively without regard to SES, students succeed; when teachers discriminate according to SES, results bear out the assumption that low SES students will fail (Clark, 1970).

Soar (1975), like Brophy & Evertson (1974), found that low SES children reacted more strongly to teacher attitudes than did high SES children. They gained less in school under an unfavorable emotional climate and gained more with teachers who treated them positively. Soar also reported that teacher structuring tends to have good learning effects with low SES pupils but negative effects on the learning of high SES pupils.

Attitude and Sex

The literature reports conflicting findings concerning the role of sex in relation to attitudes. One study reports that girls have more favorable attitudes towards female teachers, while boys have more favorable attitudes toward male teachers (Etaugh & Harlow, 1973). Another study reports no significant relationship between student sex and attitudes toward teacher (Franzen, 1965). With respect to overall attitudes toward school, one study reports no significant differences based on sex of students (Etaugh & Harlow, 1973), while other studies report that girls have a more favorable attitude towards school (Tennenbaum, 1944; Zodikoff, 1967). Finally, one study reports that girls demonstrate more positive and relaxed attitudes toward their school experiences than boys (Minuchin, Biber, Shapiro, & Zimiles, 1969). The authors also described the girls as more "expressive... responsible... productive... imaginative... (and) personalized in their ways of handling things (p. 379)," while the boys were more verbally assertive, self-confident, now-oriented and power-oriented.

Attitudes and Ethnicity

Very few studies address the topic of attitude in relation to ethnicity. Because fatalistic and fearful attitudes often severely limit learning outcomes for minority children (Tanner & Lindgren, 1971), more studies in this area are needed. Some conclude that different methods of teaching must be employed with minority children (Froe, 1972), rather than allowing teacher attitudes to put minority children in situations which result in failure (White, 1969). Repeated failures could only exacerbate any fear already present in the minority child; but the assumption that such fear is a dominant fact is largely unresearched.

Student ethnicity and teacher attitudes. There are indications in the literature that teacher attitudes are affected by student ethnicity (Del Campo, 1970; Gansneder, 1970; Rosenthal, 1973). One study reports that teachers have negative attitudes towards Black, low income students (Rosenthal, 1973); the level of acculturation of Chicano children has been found to be inversely related to teacher negative stereotype (Del Campo, 1970). Based on these findings, it would seem that the more "Anglo" the child's attitudes, the more acceptable the child will be to the average teacher. In fact, distinct differences in values and attitudes have been found between Chicano and Anglo children. In a value profile and attitude survey, Chicano students scored higher than Anglos in religious and political (competition) domains than Anglos (Del Campo, 1970).

Black children have been found to have significantly more negative attitudes towards school (Guggenheim, 1967), and higher occupational aspirations (Deutsch, 1965), than do their Anglo counterparts.

In a measure of student preferences of teacher type, Black second graders evaluated the neutral teacher most positively, while Anglo second graders and sixth graders of both races evaluated the positive teacher most favorably (Goldberg & Mayerberg, 1973).

Attitudes and Achievement

There appears to be no simple relationship between attitude and performance (Ross, 1964). Indeed, the literature is replete with contradictory findings (Dunkin & Biddle, 1974). Several studies suggest that a relationship exists (Glick, 1969; Khan & Weiss, 1973; Neale, Gill & Tismer, 1970), at least for particular subjects (Bassham, Murphy & Murphy, 1964; Lindgren, Silva, Faraco & DaRocha, 1964; Anttonen, 1969). One author suggests that the relationship between achievement and attitude is reciprocal, with achievement more often being the causal factor (Glick, 1969).

Other studies have found no relationship between attitudes towards school and achievement (Jackson & Lahaderne, 1967; Lahaderne, 1958; Tennenbaum, 1944). One study reports no relationship between liking for teacher and learning

(Carpenter & Hadden, 1966), while another study reports only a modest relationship (Potter et al., 1973). In the Carpenter and Hadden study (1966), a significant relationship was found when the material was presented by tape recorder, and higher scores were obtained when "disliked" teachers presented the material in person and on film.

Finally, there is some indication that grouping of students results in a change in attitudes, though not a change in performance (Dessart & Frandsen, 1973).

How Teacher Attitudes Affect Student Attitudes

Studies of teacher attitudes point to systematic variations by age, sex and marital status. While older single women invest more in their teaching, they report lower satisfaction than their married counterparts. Older male teachers often express bitterness toward their school system and turn their energies to avocational interests and other employment (Lortie, 1973).

Teacher attitudes also play a significant role in shaping student attitudes (Kelley, 1969; Torrance, 1960; Thomas, Bechker & Armstrong, 1968; Amidon & Simon, 1965; Biddle, 1969). Reinforcing, positive teachers instill positive attitudes in students (Thomas, Bechker, & Armstrong, 1968; Torrance, 1960). Teachers who lack maturity, who are remote and inaccessible, induce negative attitudes in students (Amidon & Simon, 1965; Biddle, 1969). Only one report does not support these findings (Dunkin & Biddle, 1974).

Several studies document differences in teaching styles that are dependent on teacher attitudes. Teachers who have been characterized as having positive attitudes appear to be quite different teachers than those characterized as having negative attitudes (Bridgman, 1968; Kerlinger & Pechazur, 1967). Teachers with positive attitudes tend to give higher grades, are more professionally active, rate higher on performance skills, are more creative, permissive and social, put less emphasis on economic values, are less authoritarian (Bridgman, 1968), perceive person-oriented traits as desirable, and see themselves as progressive (Kerlinger & Pechazur, 1967). Several studies (Kerlinger & Pechazur, 1967; Lindgren & Dinger, 1968; McGee, 1966; Sontag, 1968; Khan & Weiss, 1973), report "a close relationship between teachers' authoritarian or democratic, traditional or progressive attitudes and actual or perceived teacher classroom behavior related to students" (Travers, 1973, p. 778). For student teachers, attitudes were significantly related to general teaching ability (Justiz, 1969). Whether or not teacher attitudes directly affect student attitudes may not be as significant, then, as the fact that teacher attitudes do affect the way teachers teach, and the quality of teaching, in turn, may affect learning outcomes for students.

Teacher Attitudes and Student Achievement

> The facilitation of significant learning rests upon certain attitudinal factors which exist in the personal relationship between the facilitator and the learner (Rogers, 1969, p. 177).

Teacher warmth (Ringness, 1968; Ripple, 1965; Christensen, 1960; Gage, 1969; Frerichs, 1969), and teacher enthusiasm (Rosenshine, 1970a), have been found to correlate positively with student achievement and attitudes toward school and learning. One study reports that "students with an affectively trained teaching team improved significantly over a comparison group... In a 4 month period, students in the affective group were absent from school nearly half as often and tardy less than one-third as often as comparison-group students" (Brown, 1975, p. 194).

While one author suggests that the teacher must demonstrate interest in particular subject areas in order to motivate students (White, 1969), other studies have contradicted this supposition (Keane, 1968). Instead, teachers' affective behaviors toward students appear to be much more important determiners of student performance than teachers' interest in subject area. Negative teacher affective behaviors (including disapproval, criticizing) have related negatively with student achievement (Beller, 1973; Gage & Winne, 1975). High levels of cognitive functioning (Aspy & Roebuck, 1972), and high student performance (Gage & Winne, 1975; Davidson & Lang, 1960), correlate significantly with student perception of the teacher's positive feelings. Coupled with the finding that students who were ready to please the teacher were pushed harder academically (Silverstein & Krate, 1975), it may be concluded that teachers who have a good affective rapport with students cause many students to work harder and get better results. Furthermore, this rapport is not entirely dependent on continual face-to-face interaction. In fact, one study reports that students receiving impersonal notes or comments from the teacher actually performed at a higher level (Waterman, Northrup, Olson, 1967). The indirect, though positive approach to teaching has sometimes been shown to result in increased achievement (Manning, 1972; Flanders, 19 ; Dunkin & Biddle, 1974). Fewer personal interactions may permit the growth of better coping skills for some students (see coping section below).

Praise, alone, however, has been found to be unrelated to pupil achievement or attitudes, and one study even found it to be related to low pupil non-verbal creativity (Dunkin & Biddle, 1974). This would be in keeping with results cited above which indicate that the type of teacher affective behavior has a distinct relationship to teacher coping style and, through that, on the performance of students. Indeed, the degree of controlling behavior used by the teacher seems to affect the creative activity of children negatively (Wodtke & Wallen, 1965; Soar, 1975).

Achievement

General

The ability of students to achieve in school is dependent on a variety of factors including SES, ethnicity, teacher verbal skills, parental verbal skills, and possibly teacher attitudes and expectancies. As the child grows older, deficiencies become more pronounced, and the child who is disadvantaged in any of these repects becomes progressively less able to perform well in achievement measures. The most recurrent patterns relate achievement to SES and ethnicity.

Achievement and SES

Because of varying SES backgrounds, children enter school with different expectations of achievement (Sears & Hilgard, 1964). Several studies find a relationship between SES and level of achievement (Chaffee & Wagner, 1970; Coleman, 1969; Davidson & Lang, 1960; Eisenberg, 1967; Semler, 1960). Only one study found no relationship (Arnold, 1968).

Low SES students enter school with many disadvantages which limit their ability to compete in a highly verbal school environment. As a whole, low SES children experience "less vocal stimulation and reinforcement during infancy; fewer numbers of conversational experiences with adults during preschool period; limited opportunities for development in thinking behavior; and emotional episodes that restrict cognitive and verbal skills" (White, 1969, p. 84). With such a disadvantaged background, lower SES children often have difficulty in abstract thinking. Their lack of skill in moving from concrete to abstract modes of thinking may be the cause for delays in learning language skills (White, 1969). Two studies document the limited ability of the low SES child to label, discriminate and generalize (John, 1963; John & Goldsmith, 1964). Another study goes one step further, and reports that maternal language is the best predictor of a child's ability to abstract (Olim, Hess, Shipman, 1965).

After the initial ground work laid by Basil Bernstein (1961), many studies have focused on language and language learning differences across SES groups (Hess & Shipman, 1965; Brophy, 1970; Gahagan & Gahagan, 1968; Smothergill et al., 1969; Eisenberg, 1967; Blank & Soloman, 1968, 1969). In general, these studies result in the following beliefs: 1) the style of verbal communication is a crucial component of teaching which affects the cognitive functioning of pupils; and 2) more specifically, defective and impoverished language development is "a central factor in the failure of lower class disadvantaged children to benefit from educational instruction in elementary and secondary school" (Beller, 1973, p.).

While language skills of low SES children may be interpreted as being "different" rather than underdeveloped (Stewart, 1964, 1967, 1968, 1969; Labov & Cohen, 1967; Labov, 1969; Dillard, 1969; Baratz, 1969; Wolfram, 1969; Lesser et al., 1965, 1967), the same difficulty results: low SES students do not enter school with the same degree of socially required language skills as do middle SES children. Because teachers tend to favor and reward students who speak the way they, themselves, speak (Silverstein & Krate, 1975), the student who has not acquired the middle SES language skills of dominant society is at a disadvantage.

Limitations with which low SES students enter school become more pronounced as the child progresses through school (Deutsch et al., 1964; Stodolsky & Lesser, 1971: Coleman, 1966; Bereiter, 1965; Gray & Klaus, 1965; Pasamanick & Knoblock, 1955; Bloom, 1964; Hunt, 1961; Silverman, 1965; Gordon, 1965; Davis, 1948; Karp & Sigel, 1965; Coleman et al., 1966). While initial contact with middle SES students may result in a spurt in IQ scores for low SES students, such increases appear to be temporary. Low SES students quickly fall behind because of their lack of middle SES linguistic and cultural skills (Stodolsky & Lesser, 1971). On the other hand, children who perform well in school tend to come from families which encourage intellectual development (Freeberg & Payne, 1967).

Achievement and Sex

No definite relationship between achievement and sex has been established. If such differences do exist, they are in relation to specific subject areas corresponding with local social biases. Several studies report no differences in achievement (Keane, 1968; Murry & Staebler, 1973), or in classroom-observed behaviors related to achievement (Etaugh & Harlow, 1973). Another study reports differences only in low SES groups: low SES girls were superior to low SES boys (Peisach, 1965). Only a few studies indicate that cognitive differences do exist between males and females. In another study, girls were found to be more favorably disposed toward school and more academically successful (Lahaderne, 1967). Specifically, literal and interpretative comprehension were found to be differentially affected by sex (Jacobson & Johnson, 1967). Neale, Gill and Tismer (1970) report that the relationship depends on the subject area and sex of the student. Positive correlations were established for boys in social studies and arithmetic, and for girls in reading. Drew (1963) points out that encouragement is especially needed for the development of creative talent in the case of girls and culturally deprived students (White, 1969).

The existence of differential evaluation of students based on teacher sex has not been established. Three studies find no evidence of effects of teacher sex on grading of students (Arnold, 1968; Forslund & Hull, 1974; Webb, 1970). One study does find that male teachers tend to give slightly higher marks to both male and female students (Arnold, 1968). Other authors suggest that teachers use different criteria to evaluate boys and girls (Arnold, 1968; Sears & Feldman, 1966). As the length of time since the teacher attended college increased, the number of "excellent" ratings given to boys in language decreased significantly. If the teacher were a non-parent, the number of "unsatisfactories" increased (with years of experience) to the point of significance for both boys and girls in the subject, reading (Webb, 1970). There are indications that class size affects teacher grading (Webb, 1970): in large classes, the number of "goods" given to boys in reading and language, and the number of "goods" given to girls in reading increased. The number of "unsatisfactories" given to girls in reading, arithmetic and language decreased.

Achievement and Ethnicity

Minority group children often enter school deficient in skills, and leave school with even greater deficiencies (Tanner & Lindgren, 1971; White, 1969). The educational system is supposed to overcome such deficiencies (Green, Bakan, McMillan & Lezotte, 1973). Because minority group children often comprise low SES groups, minority group children have many of the disadvantages described above (see "Achievement and SES"), including deficiencies in language skills (Silverstein & Krate, 1975; Tanner & Lindgren, 1971). In a study measuring mental ability scales of first grade Jewish, Black, Chinese and Puerto Rican children, scores of middle SES children across ethnic groups were most similar (Stodolsky & Lesser, 1971). These results can probably be attributed to the fact that the middle SES children reflected the middle class values which are most similar to the teacher's values and skills (see "Achievement and SES").

There is some indication that teachers can learn to play a more significant role in interracial classrooms and can contribute to the academic growth of Black children even more than with white children (St. John, 1971). By the same token, however, findings indicate that teachers can also do more damage to such children, since often the minority child is low SES and is more dependent on the teacher for approval than the middle SES white child (   ).

Characteristics of Achievers and Underachievers

Some generalities can be drawn about differences in the work styles of achievers and underachievers, although one author does warn against such generalizations because information on under/overachievers does not sufficiently explore the interaction of cognitive factors that may affect discrepant achievement scores (Ashbury, 1973).

Underachievers spend more time in withdrawal (Dunkin & Biddle, 1974; Perkins, 1964), nonacademic work, and work in another academic area, than do achievers (Dunkin & Biddle, 1974). As compared with normal achieving males, underachievers manifest less need for academic achievement, do not establish vocational goals, do not understand the relationship between coursework and goal attainment, have a low expectancy for academic achievement (Todd & Terrel & Frank, 1962), and engage in less group work with their peers (Perkins, 1964). Underachievers were found to be passive and therefore less involved in the classroom (Dunkin & Biddle, 1974). The authors go on to suggest that classrooms which require students to play a passive role may depress student achievement (see section below on "Teacher Characteristics and Strategies in Relation to Student Achievement").

Teacher Characteristics and Strategies in Relation to Student Achievement

Some researchers believe that the teacher is the most important variable in student learning (Chaffee & Wagoner, 1970; Burke & Reardon, 1970). In an experimental study conducted to determine if teachers are a significant variable affecting student learning, a treatment group was presented material from teachers, while a control group used self-instructional material. The group receiving instruction from the teacher obtained significantly higher scores than controls on a criterion-referenced test (Moody, 1968).

While most classroom discourse has been found to be of low cognitive level (Bloom, 1956), teachers who engage in high level questioning probably stimulate a high level response from students. One study does find a significant relationship between teacher cognitive level and pupil response categories (Measel & Mood, 1972). However, evidence suggesting that this affects student achievement is not available (Dunkin & Biddle, 1974). Dunkin and Biddle suggest that "use of high-order categories has either a complex relationship with pupil achievement, or, in an experimental study, is found to be unrelated to this (p. 393)." Only one study reports that teacher cognitive styles do predict student gain (Howard, 1966).

Teacher verbal ability may be a significant determiner of learning outcome (Chaffee & Wagner, 1970): teacher vagueness predicts student gain (negatively), while teacher use of explicit logic predicts student gain positively (Dunkin & Biddle, 1974).

Knowledge of subject area, however, is not related to student performance (Prekeges, 1973; Van de Walle, 1973). Instead, teachers who follow the teacher's manual closely have been found to obtain superior learning outcome (Hook, 1966).

Soar has conducted or reviewed a substantial body of research on this issue. He points out the recurrent finding of curvilinearity: more is not always better, when it comes to such things as teacher control. Instead, he finds an intermediate level of control most conducive to pupil learning. He further points out that it makes a difference what is controlled: pupil behavior, pupil thought, or tasks; and that teachers do not always make the discrimination in the most facilitative manner (Soar, 1968; Soar & Soar, 1975).

Academic Achievement and Teacher Behaviors

While teacher perceptions of students do not appear to be related to grade assignments in a significant manner (Thomas, 1972), high achievers do receive more favorable behavior ratings from teachers than low achievers (Lewis, 1971), and teachers sometimes conduct their teaching toward the low ability students (Dunkin & Biddle, 1974). After reviewing 50 articles correlating teacher behaviors and student achievement, Rosenshine and Furst (1973) found the following nine variables to be significantly related to measures of student growth: clarity, variability, enthusiasm, task oriented and/or business-like behaviors, criticism, teacher indirectness, student opportunity to learn criterion material, use of structuring comments; and multiple levels of questions or cognitive discourse.

Teacher Expectations and Student Achievement

The effects of teacher expectancy on student behavior are not clearly understood (Biddle, 1969). Several studies find that when a teacher expects a student to perform well, the student actually does perform better than control group students (Richardson, 1968; Jose, 1970; Kaplan, 1971; Carter, 1971; Rosenthal & Jacobson, 1966; Kohn, 1973; Evertson & Brophy, 1974; Good, 1970; Hammachek, 1969; Brophy & Good, 1970; Rosenthal, 1968; Richardson, 1968). Teacher expectations appear to have some affect on student level of confidence and scholastic potential (Carter, 1971). Such effects may be differentiated for particular ethnic groups (Guggenheim, 1967), or for sex of student (Evans, & Rosenthal, 1969). One study reports that such biases affect older subjects more than younger subjects (Dusek, 1973). Brophy and Good (1970) report that differential teacher treatment of high and low expectation students will cause these two groups of students to become increasingly more different from each other in their classroom behavior and achievement levels as the school year progresses. However, these effects were not replicated in a later study on the 5th grade level (Brophy, Evertson, Harris, & Good, 1973). Five studies report no significant relationship between teacher expectancy and student performance (Peng, 1974; Silverstein & Krate, 1975; Wlodkowski, 1972; Anderson, 1977; Jacobs, 1970).

Coping

General

Some degree of challenge and stress is a necessary part of life (Hampton, 1975). How a child chooses to cope with problems will determine many of his or her learning skills later in life (Gardener, 1971). "Coping skills" describe the manner in which the child deals with ambiguities (Hampton, 1970), hazards (Mellinger & Manheimer, 1967), risk taking situations (Cronbach, 1967); and problem solving in general (Siddle, Moos, Adams & Cady, 1969). Intended effort and approach to a task may predict behavioral intensity and performance level better than achievement motivation or success-feedback (Latta, 1974). When anxiety is overwhelming, or when a child cannot cope with stress in a constructive way, the child may develop defenses, neuroses, character defects, or even psychoses (Kaplan, 1970). Across a variety of population groups, a single conclusion has emerged: human adjustment is directly related to the ability to imagine alternative solutions to problems, to conceptualize means to solve problems, and to move toward a constructive resolution of the problems (Spivak & Levine, 1963; Platt, Altman & Altman, 1973; Platt & Spivack, 1972a, 1972b, 1973a, 1973b; Spivack & Shure, 1972; Shure & Spivack, 1970b; Shure, Spivack & Jaeger, 1971; Shure & Spivack, 1972a; Shure, Newman & Silver, 1973; Spivack & Shure, 1974).

The concept of coping represents a heuristic attempt to identify and study effective processes in ego operations (Haan, 1969). Between ages 2 to 4, children have already developed a repertoire of coping skills and defense mechanisms (Murphy, 1960). There is evidence that in the child's early development, there is some relationship between coping devices, defense mechanisms, and autonomous functions of the ego (Murphy, 1964). Several models of ego functioning which include both coping and defense mechanisms have been defined in the literature (Haan, 1963; Haan, 1969). One model of coping behaviors developed by Weyl (1972) suggests five behaviors which a child may exhibit: 1) striking out at others; 2) denials of escape; 3) determining cause or blame; 4) rehearsing possible solutions; 5) seeking help support or information. Another author suggests that children may lower their aspiration level in order to cope with failure (Austin, 1963).

The conceptual-model for defining coping skills that is used in this study was developed by Peck and his collaborators in an international research network (Peck, 1967; Peck et al., 1974). This model defines six dimensions of coping behavior which are descriptive in nature and incorporate concepts outlined above: 1) confronting the existence of the problem; 2) taking thought for a possible solution; 3) initiating an effort to carry out the intended solution; 4) pursuing the solution in a relatively calm or positive emotional state (not negative); 5) cooperating with others who are involved or who could be helpful; 6) persisting in the effort to a solution or until it is clear that no solution can be reached. This study posits that the identification of the coping skills of both teachers and students is one key to understanding what makes particular teachers effective with particular students. Until recently, the preponderant emphasis on cognitive development has tended to obscure the importance of allowing children to make choices and to develop independent coping skills through their class work. Lately though, the manner in which a child approaches a task and solves problems is gaining increased attention. Instruction must be adapted to particular children's coping styles (e.g., the child's willingness to take risks, how the child accepts failure, motivation for self direction, etc.) (Cronbach, 1967). Spaulding, using a quite similiar conceptual model, reported impressive success in fostering gains in both cognitive and coping skills, by training teachers directly to reduce such skills (Spaulding, 1963).

One model distinguishes coping mechanisms from ego defense mechanisms, by defining coping devices as neurosis-free (Kroder, 1963). This study will focus on coping styles of children as opposed to defense mechanisms. Indeed there is evidence that the flexibility and success of a child's coping patterns plays a larger role in the child's happiness than defense mechanisms (Murphy, 1966).

Particular Children's Coping Styles

Coping styles vary from child to child, depending on personality and environmental variables. One study defines several types of child coping styles, and suggests corresponding needs which must be met to increase learning (Spaulding, 1963). Spaulding, for example, found that "creative intellectual," highly motivated children need limits and range of choice, while the "conforming achiever" needs clearly stated expectations and instructions. Another study reports a high correspondence between particular coping styles and impulsivity/reflectiveness: reflective children displayed less incidental learning and more central learning than implusive children (Weiner & Berzonsky, 1975). Another study reports that an analytical field approach is related to more complex coping systems (Witkin, Dyk, Paterson, Goodenough & Karp, 1962).

Coping and SES

The relationship between coping skills narrowly defined, and SES has not been studied much, as yet. One study reports mixed findings for the relationship between responsibility scores and SES (Crandall, Katkovsky & Crandall, 1965). Middle and upper middle SES groups cope with stress in a way that enhances achievement. One study reports that middle SES children are more at ease in situations requiring conformity and control than are low SES children (Heintz, 1949). Another study reports that upper-middle SES Anglos cope more effectively than upper-lower SES Anglos (Burkey, 1969).

Low SES children are likely to have poor resistance to stress (Tanner & Lindgren, 1971), and use apathy and indifference as adaptive mechanisms to cope with school demands (Johnson & Bany, 1970).

The largest-scale study was carried out in eight countries. While it found significant age and national differences in coping skill, the most systematic finding was the greater coping effectiveness evidenced by upper-middle class children as compared with skilled-working class children, in almost all of the countries, in both of two samples taken three years apart. There was, with only one exception, very large SES difference in achievement test performance (as in the I.E.A. study), favoring the higher SES level. It may bear emphasis that no really poor, lower-lower class children were included in the study, because of certain practical constraints (Peck et al., 1972-74).

Probably the most significant evidence, though, comes from studies in which "coping" is called "mental health." Every such study has demonstrated a strong, negative correlation between SES and mental health. Life at the lowest SES level, is particular, has a crippling effect on the ability of far more people than at any higher level to cope effectively without succombing to psychosis, disabling neurosis, psychosomatic illnesses, alcoholism, drug addiction, homicidal rages, etc. (Hollingshead & Redlich, 1958; Srole et al., 1962; Peck, 1959).

Coping and Sex

Only one study reports no sex differences in coping styles (Hughes, 1968). Other studies report that girls manifest more anxiety than boys (Hawkes & Furst, 1971; Ripple, 1964; White, 1969). White (1969), however, suggests that this conclusion might result from the fact that girls have a greater willingness to admit fear. Sixth grade girls demonstrate a high level of internal control with respect to academic achievement (Share, 1973), and were found to spend more time in reading, writing, discussing work with peers, and in nonacademic work than boys (Dunkin & Biddle, 1974). In the same study, boys were found to spend more time in high activity or work in another academic area than girls.

Finally, the sex of the teacher may have some effect on student coping. In one study, students of female teachers had higher achievement-striving scores than students of male teachers (Manning, 1972).

Coping and Ethnicity

Among deprived children, anxiety and fear of aggression may have disastrous affects on children's learning capabilities (Gardner, 1971). One study suggests the following guidelines in evaluating disadvantaged children: 1) responses made as a result of learning may not be the same as the behaviors exhibited by brighter children; 2) problem solving ability may be confused with attitudinal behaviors (students' learned attitudes toward problem solving make it difficult to judge problem solving ability in terms of regular standards, since the affective domain of behavior may control or inhibit cognitive activity; and, 3) disadvantaged children may have different learning styles (fewer responses which are also more often correct, slowness in working, carefulness rather than impulsiveness).

According to this same author, educators must use different techniques to teach the disadvantaged child. A few long range goals must be replaced with many short range goals, and educational objectives should be oriented toward the present situation (Froe, 1972).

There are mixed findings concerning specific ethnic differences in coping skills. Several studies report no differences across ethnic groups in measures of anxiety (Hughes, 1968), level of engagement of students in subject matter (Hess et al., 1973), or tolerance of ambiguity (Hampton, 1970). Other studies do report differences. Burke (1969) reports that coping effectiveness in dealing with aggression, interpersonal relations and task achievement was found to vary between ethnic groups. In the subject area of reading, Blacks demonstrated significantly better coping strength than other students included in the study (Hughes, 1968). A task-oriented approach to reading was found to contribute to improvements in Black student reading skills (St. John, 1971). One study reports Blacks as rating high on measures of achievement motivation, but low on achievement performance (Mech, 1972). Another study reports that Blacks and whites approach academic tasks with equally high expectations, but that Black students' level of aspiration dropped quickly after experiencing failure (Guggenheim, 1967).

Black lower SES students had higher anxiety than higher SES whites (Hawkes & Furst, 1971). Blacks from inner city environments scored higher on anxiety than whites from suberban environments (Hawkes & Furst, 1971).

Coping Skills and Anxiety

"The problem in most classrooms today is the existence of too much anxiety rather than too little (Tanner & Lindgren, 1971, p. 135)."

Student anxiety may result from two main sources: 1) apprehension of possible loss of affection; and, 2) competition in socially demanded skills, especially intellectual ability (White, 1969). Such anxiety can seriously inhibit school performance (Flanders, 1951; Sarason, Davidson, Lighthall, Waite, 1958; White, 1969). Indeed, distinct differences have been found between high and low anxious children. Highly anxious boys showed less task-orientation and manifested greater insecurity with teachers than less anxious boys (Sarason, Davidson, Lighthall, & Waite, 1958). Highly anxious children have been characterized as being: 1) more blunt than overconventional; 2) more distrustful than responsible; 3) more skeptical than overgenerous; 4) more aggressive than cooperative; 5) more competitive than dependent; and, 6) more exploitative than docile (Manning, 1972). Highly anxious boys have been found to be more positively assertive than less anxious boys (Rowland, 1969). Mothers of highly anxious boys gave positive reinforcement and had more autonomy granting behaviors (Rowland, 1969). When highly anxious boys were given motivating instructions, they showed more reactive inhibition than less anxious boys, but when given low motivation instructions, they reacted the same as the less anxious boys (Wayne, 1966). Highly anxious subjects displayed more spontaneous behavior under supportive conditions, but disturbed behavior under non-supportive conditions which lacked feedback (Oner, 1971).

Boys with low coping skills demonstrated poorly controlled behavior, passive aggression (Rowland, 1969), and received poor teacher ratings on expressing ideas both verbally and nonverbally (Wood, 1970).

In studies comparing high and low anxiety boys, highly anxious boys did not perform as well on problem solving tasks as less anxious boys (White, 1969). High compulsive/high anxiety children overachieved in structured situations, while low compulsive/high anxiety underachieved in instructional situations (Sears & Hilgard, 1964).

Teacher behaviors have been found to be related to student anxiety (Zimmerman, 1970). In the average-anxious category, a relationship was found between teacher anxiety and student anxiety. The interaction was toward a lower anxiety level (Fisher, 1967). An inverse relationship has been found between teacher use of generalized and specific reinforcement and student levels of school anxiety (Zimmerman, 1969). Learner-centered teacher behaviors decrease student anxiety, while teacher-centered teacher behaviors result in student hostility and emotional disintegration (Flanders, 1951).

Specific teacher behaviors have been identified for use with highly anxious and less anxious children in order to increase coping and cognitive skills. Low motivation/high anxious children seem to learn best using short-term goals with maximum guidance and feedback at short intervals. High motivation/low anxious students perform best when goals are not too explicit and feedback is provided at reasonable intervals (Cronbach, 1967).

Significantly higher anxiety is reported in students with low IQ (Feldhusen et al., 19), and with students who have low morale and low achievement (Johnson & Buny, 1970). Teachers must reduce anxiety and heighten morale. Instead, quite often the teacher develops anxiety about the child's learning difficulties, which only serves to enhance the child's anxieties and inhibit learning (Tanner & Lindgren, 19). Desensitization is sometimes used to help relieve highly anxious children of their fears. Other techniques include use of structured, programmed instruction, overlearning, and mild discipline (Clarizio, 1971).

Motivation and Achievement

The relationship between motivation and achievement appears to be complex, and has aroused much controversy.

Particular cognitive styles appear to affect motivation. If students have an opportunity for divergent rather than merely convergent thinking, intrinsic motivation is readily aroused (Sears & Hilgard, 1964). The relationship of "the achievement motive" to performance has been found to be significant when pride in accomplishment is aroused (Atkinson & Reitman, 1956). Anxiety becomes a potential determiner of inhibitory behavior, however, after a critical level of motivation has been reached (Wayne, 1966). Success-feedback produces early, assymptotic performance for those who scored high in achievement motivation, as compared with those who scored low (Latta, 1974).

Attention Factors in Relation to Coping

Few studies discuss the relationship between coping styles and ability to attend, although attention to task is certainly indicative of healthy or poor coping habits; and, in turn, attending to task is related to learning outcome. One author finds a significant relationship between attention to task and level of adjustment of the child (Werner & Simpson, 1974). Other studies find that impulsive children do not attend selectively, while reflective children show a trade-off of incidental for central learning (Werner & Simpson, 1974). Reflective children are more flexible in their deployment of selective attention (Weiner & Berzonsky, 1975); attentional style has been found to distinguish poor from good readers (Denny, 1974).

Time on Task. A volume of recent literature has emerged which focuses on time spent attending to task in relation to learning outcome. By defining aptitude in terms of the time needed to complete a task, Carroll (1963) produced a major shift in educational opinion. Since then, many researchers have begun to explore the manner in which students spend their time. Anderson (1973), Arlin (1973), Lahaderne (1967), and Ozcelik (1973) have found that "the amount of time the student is spending directly on the learning (either overt or covert) is highly predictive of the learning achievement of the student" (Ozcelik).

Bloom (1974) found that some students spent three times as much time engaged in active learning as others during the same elapsed item. Other studies report that slow learners take five times as long as the fast learners to reach the criteria (Glaser, 1968; Atkinson, 1968). Zeaman and House (1963) conclude that the difference between fast and slow learners was dependent on "how long it takes the attentional response to discriminate the relevant stimulus features; after this occurs, improvement is uniformly fast for both groups (p. 845)."

While distinct differences in time-on-task can be found between achievers and non-achievers, time-on-task alone does not seem to predict mastery learning. Rate of learning is not a constant (Cronbach, 1967), and students use their time-on-task in a variety of ways (Perkins, 1965). In addition, the nature of a task may dictate the level of involvement of students (Dunkin & Biddle, 1974) and task orientation (Kowatrakal, 1959). Time on task must be considered in conjunction with other predictive variables:

> The explanation for differences in time-on-task is... complex and probably includes cultural differences, the importance of school learning to the students and their parents, the way in which teachers use the time available for learning, the quality of the instruction and the extent to which students attain the prerequisites for a particular learning task (Bloom, 1974, p. 687).

Bloom distinguishes between time elapsed to reach a set of learning criterion, and time-on-task (amount of time learner is actively engaged in learning). By focusing on time-on-task, Bloom has found it possible to reduce the time elapsed to reach a set of learning criteria. Indeed, Bloom reports that after significant exposure to mastery learning conditions, differences among students in time spent learning a task decreased from 3:1 to 1.5:1.

Studies of mastery learning and time-on-task have found that rates of learning are specific to learning tasks, and not a general parameter applicable to all learning factors (Lindvall & Yeager, 1965).

For this study, time-on-task is treated as a component of academic coping behavior. Its relations to teacher behavior and to learning outcomes will both be assessed. It is treated as an intermediate (process) link in the chain between student entry characteristics and teacher characteristics on the one hand, and student outcomes on the other.

Teacher Coping and Achievement

Teachers must be equipped to identify sources of motivation and anxiety in each pupil in order to provide the limits and structures appropriate for each child (Spaulding, 1963; Kaplan, 1970). Teachers must be aware of the effects of environmental considerations (such as class size) on student coping styles, motivation and anxiety (Hess, 1973), and distraction levels (White, 1973). In addition, teacher coping behaviors can have a direct effect on student performance (Murray & Staebler, 1973; Amidon & Flanders, 1961; Pavlovich, 1971).

Dependence-prone students are probably more sensitive to teacher influence than independence-prone students (Amidon & Flanders, 1961). Dependence-prone students may learn more from indirect teaching (Amidon & Flanders, 1961), and from internally controlled teachers (Murray & Staebler, 1973). Reflective teachers have influenced pupil change favorably; impulsive teachers have influenced pupil change unfavorably (Pavlovich, 1971).

One study attempted to match particular teacher coping styles with particular child coping styles. In this study, self-controlling teachers got the best results in general, while fearful teachers got the worst results. With children classified as conformers and strivers, "turbulent" teachers elicited almost as much achievement as the self-controlling teachers, but less than half as much achievement from children classified as "opposers" and "waverers." The fearful teacher received the greatest amount of achievement from the strivers, but not much more than the self-controlling teacher and the turbulent teachers (Heil & Washborne, 1960).

Some teacher behaviors inhibit student coping skills; autocratic teachers may heighten student anxiety (Kaplan, 1971); too much emphasis on learning may result in blocking and functional "stupidity" (Almy, 19); teacher criticism is associated with lower pupil achievement, higher pupil fear of failure, lower pupil self-concept, greater pupil dependency and lower pupil anxiety (Dunkin & Biddle, 1974); overassertive teachers inhibit students by stressing narrow academic ends (Gabriel, 1957); authoritarian teachers may cause students to be too dependent on the teacher for problem solving (Goodson, 19); pupils of highly controlling teachers exhibit less self-initiated talk (Wodtke & Wallen, 1965), and apathy towards completing their work (Johnson & Buny, 1970). On the other hand, teacher acceptance is associated with more pupil initiations in the classroom, lower pupil anxiety, and greater pupil creativity (Dunkin & Biddle, 1974).

In general, it apperar that a good balance of task-orientation helps a child focus on learning (Ringness, 1968), and that quantity of teacher control is less important than quality of control (Withall & Lewis, 1963; Soar, 1975).

REFERENCE LIST

PECK - Literature Review

Amidon, E., & Giammatteo, M. The verbal behavior of superior teachers. *The Elementary School Journal*, 1965, *65*(5), 283-285.

Amidon, E., & Hoffman, C. B. Can teachers help the socially reflected? *The Elementary School Journal*, 1965, *66*(3), 149-154.

Amidon, E., & Simon, A. Teacher-pupil interaction. *Review of Educational Research*, 1965, *35*(2), 130-139.

Anderson, P. S. Teacher expectations and pupil self-conceptions. *Dissertation Abstracts International*, 1971, *32*(3), 1619-A.

Arnold, R. D. The achievement of boys and girls taught by men and women teachers. *The Elementary School Journal*, 1968, *68*(7), 367-372.

Ashbury, C. A. A review of literature concerned with selected factors influencing over-and underachievement in young, school-age children. *Catalog of Documents in Psychology*, 1973, *3*, 62.

Aspy, D. N. The effect of teachers' inferred self concept upon student achievement. Gainsville, Florida: University of Florida, 1969. (ERIC ED 031 300.)

Aspy, D. N., Roebuck, F. N., & Black, B. The relationship of teacher-offered conditions of respect to behaviors described by Flanders' Interaction Analysis. *The Journal of Negro Education*, 1972, *41*(4), 370-376.

Austin, D. S. Member coping with group success and failure. *Dissertation Abstracts International*, 1963, *24*(6), 2603.

Baker, J. W., & Holzworth, A. Social histories of successful and unsuccessful children. *Child Development*, 1952, *32*(1), 135-149.

Beilin, H. Teachers' and clinicians' attitudes toward the behavior problems of children: A reappraisal. *Child Development*, 1959, *30*(1), 9-25.

Biddle, B. J. Teacher roles, In Ebel, (Ed.) *Encyclopedia of Educational Research*. Toronto: MacMillan Co., 1969.

Bouchard, R. P. An experiment in student self concept change through teacher interaction. Dissertation Abstracts International, 1971, 32(2), 6602.

Borton, T. Reach, touch, and teach. Saturday Review, 1969, 69, 56-58, 69-70.

Braun, C. Johnny reads the cues: Teacher expectation. The Reading Teacher, 1973, 26(7), 704-712.

Bridgman, J. N., Jr. Selected teacher characteristics and their relationships with certain behavior patterns and teaching effectiveness. Dissertation Abstracts International, 1968, 28(9), 3524A.

Brophy, J., Evertson, C., Harris, T., & Good, T. Communication of teacher expectations: Fifth grade. Catalogue of Selected Documents in Psychology. 1973, 3, 61.

Bruce, P. Relationships of self-acceptance to other variables with sixth grade children oriented in self-understanding. Journal of Educational Psychology, 1958, 49, 229-238.

Bryant, B. K. Locus/control related to teacher-child interperceptual experiences. Child Development, 1974, 45, 157-164.

Burck, H. D., & Reardon, R. C. Individual differences and learning efficiency. Contemporary Education, 1970, 41(3), 119-122.

Burke, L. L. Coping effectiveness as a function of the social environment. Dissertation Abstracts International, 1969, 29(10-A), 3455.

Burrows, R. C. The effect of level of teacher approval in student disruptive behavior and self-concept. Dissertation Abstracts International, 1971, 32(5), 2476A.

Caplin, M. D. The relationship between self concept and academic achievement The Journal of Experimental Education, 1969, 37(3), 13-16.

Carpenter, F., & Haddan, E. E. Effects of liked and disliked teachers on student behavior. Report no. CAF 2450, Ann Arbor: University of Michigan, 1966. (ERIC ED 010 375.)

Carter, D. L. The effect of teacher expectations on the self-esteem and academic performance of seventh grade students. Dissertation Abstracts International. 1971, 31(9), 4539A.

Chaffee, J., & Wagner, P. Teachers do make a difference. American Education, 1970, 6(4), 23-25.

Chesney, B. H. Relationships among teacher-student conceptual tempo compatibility student attitude toward school, and student attitude toward the self. *Dissertation Abstracts International*, 1971, *32*(1), 232A.

Christensen, C. M. Relationships between pupil achievement, pupil affect-need, teacher warmth, and teacher permissiveness. *Journal of Educational Psychology*, 1960, *51*(3), 169-174.

Clifford, M. M. Children's perception of their academic ability and achievement accountability. Final report. Grant no. OEG-6-70-0043(508). Iowa City, Iowa: Iowa University, 1971. (ERIC ED 056 350)

Coleman, G. W., Jr. Negative self-concepts in elementary school children are identifiable, and to a degree modifiable, under a certain syndrome of teacher-pupil relationships. *Dissertation Abstracts International*, 1969, *29*(10), 336A.

Coppersmith, S., & Silverman, J. How to enhance pupil self-esteem. *Today's Education*, 1969, 58(4), 28-29.

Davidson, H. H., & Lang, G. Children's perceptions of their teacher's feelings toward them related to self-perception, school achievement and behavior. *Journal of Experimental Education*, 1960, *29*(2), 107-118.

de Groat, A. F., & Thompson, G. G. A study of the distribution of teacher approval and disapproval among sixth grade pupils. *Journal of Experimental Education*, 1949. *18*(1), 57-75.

Del Campo, P. E. An analysis of selected factors in the acculturation process of the Mexican-American elementary school child. 1970.

Dessert, D. J., & Frandsen, H. Research on teaching secondary-school mathematics. Dr. Travers (Ed.) *Second Handbook of Research on Teaching*. Chicago: Rand McNally, 1973.

Dorr, D. et al. The relationship between child and teacher evaluations of self esteem and adjustment in fourth and sixth grade children. Paper presented at the Southwestern Psychological Association meeting, New Orleans, April 1973, (ERIC ED 088 969.)

Douglas, M. P. (Ed.) Claremont College Reading Conference 32nd Yearbook. Claremont, California: Claremont University Center, 1968.

Dowley, E. M. Early childhood education. In Ebel, R. L. *Encyclopedia of Educational Research*. London: MacMillan Company, Collier-MacMillan Limited, 1969.

Dunkin, M. J., & Biddle, B. J. *The Study of Teaching*. New York: Holt, Rinehart, and Winston, Inc., 1974.

Edeburn, C. E., & Landry, R. G. Teacher self-concept and student self-concept. Paper presented at the annual meeting of the American Educational Research Association, Chicago: 1974. (ERIC ED 088 892)

Eisinberg, L. Some children are convinced they can't win. Southern Education Report, 1967, 2(8). (ERIC ED 021 892)

Etaugh, C., & Harlow, H. Behaviors of male and female teachers as related to behaviors and attitudes of elementary school children. A version of the paper was presented at the biennial meeting of the Society for Research in Child Development, Philadelphia, Pennsylvania. Peoria, Illinois: Bradley University, 1973. (ERIC ED 086 345)

Evertson, C. M., & Brophy, J. E. High-inference behavioral ratings as correlates of teaching effectiveness. Contract No. OEC-6-10-108, Austin: Texas University, 1974. (ERIC ED 095 174)

Fisher, W. B. II Some effects of low, average, and high anxious teachers on the anxiety levels and achievement of sixth grade students. Dissertation Abstracts International, 1967, 27(9), 2876A.

Flanders, N. A. Analyzing teacher behavior. Educational Leadership, 1961, 19(3), 175-180.

Forslund, M. A., & Hull, R. E. Teacher sex and achievement among elementary school pupils. Education, 1974, 95(1), 87-89.

Franzen, C. B. The relationship of sixth graders' perceptions of teacher behavior to selected social attributes of teachers and pupils. Dissertation Abstracts International, 1965, 26(3), 1448-1449A.

Frerichs, A. H. Relationship of self esteem of the disadvantaged to school success. A shorter version of a paper presented at the Annual Meeting of the American Educational Research Association, Minneapolis, March, 1970. (ERIC ED 040 223)

Frerichs, D. A. Affective teacher behavior; differential sequencing of learning material; and authoritarianism of the learner. Dissertation Abstracts International, 1969, 30(4a), 1431.

Friedman, P. Relationship of teacher reinforcement to spontaneous student verbalization within the classroom. Journal of Educational Psychology, 1973, 65(1), 59-64.

Froe, O. D. Evaluating the achievement of the disadvantaged student. The Journal of Negro Education, 1972, 41(2), 121-126.

Gage, N. L. Teaching methods. In R. L. Ebel (Ed.) *Encyclopedia of Educational Research*. Toronto: MacMillan Co., 1969.

Gage, N. L., & Winne, P. H. Performance-based teacher education. In Ryan (Ed.) Teacher Education NSSE 74th yearbook 1975.

Gansneder, B. M. The relationship between teachers' attitude toward pupils and pupils' attitude and achievement. Paper presented at American Educational Research Association Convention Minneapolis, Minnesota, 1970. (ERIC ED 037 788.)

Gardner, G. E. Agression and violence: The enemies of precision learning in children. *American Journal of Psychiatry*, 1971, *128*(4), 445-450.

Glaser, R., & Cooley, W. W. Instrumentation for teaching and instructional management. In Travers, R. M. W. (Ed.)

Glavin, J. P. *Behavioral Strategies for Classroom Management*. Columbus, Ohio: Charles E. Merrill, 1974.

Glick, O. The interdependence of sixth grader's school attitudes and academic performance. Paper presented at the Western Psychological Association Convention Vancouver, British Columbia, June 1969. Bremerton, Washington: Olympic Center for Mental Health and Mental Retardation, 1969. (ERIC ED 035 033)

Godfrey, C. E. Intelligence, achievement, self-concepts, and attitudes among 1216 typical sixth and seventh grade students in fourteen North Carolina public schools: Preliminary results of a study conducted January 1970. Winston, Salem: North Carolina Advancement School, 1970. (ERIC ED 045 760)

Goldberg, G., & Mayerberg, C. K. Emotional reactions of students to nonverbal teacher behavior. *The Journal of Experimental Education*, 1973, *42*(1), 29-32.

Good, T. L. Which pupils do teachers call on? *Elementary School Journal*, 1970, *70*(4), 190-198.

Green, R. L., Baker, R. G., McMillin, J. H., & Lefoth, L. W. Research and the urban school: Implication for educational improvement. In Travers (Ed.)

Guggenheim, F. Self-esteem and achievement expectation for white and Negro children. Curriculum report. New York: New York City Board of Education, Bureau of Curriculum Research, 1967. (ERIC ED 021 938)

Hampton, J. D. Intolerance of ambiguity: A coping mechanism or mode of evaluation? *Revista Interamericana de Psicologia*, 1970, *4*(1), 43-49.

Hankin, N. E. A study of the relationship of selected factors to teaching effectiveness. Dissertation Abstracts International, 1965, 25(9), 5113A.

Hawkes, T. H., & Furst, N. F. Race, socio-economic situation, achievement, IQ, and teacher ratings of students' behavior as factors relating to anxiety in upper elementary school children. Sociology of Education, 1971, 44(3), 333-350.

Hishiki, P. C. The self-concepts of sixth grade girls of Mexican-American descent. California Journal of Educational Research, 1969, 20(2), 56-62.

Hollingshead, A. B., & Redlich, F. C. Social class and mental illness. New York: John Wiley and Sons, Incorporated, 1958

Hook, E. N. Teacher factors influencing pupil achievement in elementary school english. Dissertation Abstracts International, 1966, 26(12 part 1), 7116A.

Hughes, M. M. Teacher behavior and concept of self. Childhood Education, 1964, 41(1), 29-33.

Hughes, T. M. A study of the relationship of coping strength to self concept, school achievement and general anxiety level in sixth grade pupils. Dissertation Abstracts International, 1968, 28(10-A), 4002.

Jacobs, J. F. Teacher expectancies: Their effect upon peer acceptance. Paper presented at AERA annual meeting, Minneapolis, Minnesota, 1970. (ERIC ED 039 179)

Jacobson, M. D., & Johnson, J. C. The relationships of attitudes to reading comprehension in the intermediate grades. 1967. (ERIC ED 012 676)

Johnson, T. A. A study of characteristics of fifth and sixth grade student leaders and followers in contrasting socio-economic settings. Dissertation Abstracts International, 1971, 31(8-a), 3876.

Jose, J. Teacher-pupil interaction as it relates to attempted changes in teacher expectancy of academic ability and achievement. Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, 1970. (ERIC ED 041 630)

Justiz, T. B. A reliable measure of teacher effectiveness. Educational Leadership, 1969, 3(1), 49-55.

Kahn, S. B., & Weiss, J. The teaching of affective responses. In Travers (Ed.) Second Handbook of Research on Teaching. Chicago: Rand McNally, 1973.

Kaplan, B. L. Anxiety: A classroom close-up. *Elementary School Journal*, 1970, *71*(2), 70-77.

Keane, D. F. Relationships among teacher attitude, student attitude, and student achievement in elementary school arithmetic. Ph. D. dissertation, Ann Arbor: University Microfilms, 1968. (ERIC ED 055 774)

Kerlinger, F., & Pechazur, E. Educational attitudes and perceptions of desirable traits of teachers. 1967. (ERIC ED 011 868)

Knowles, G. M. Teacher-pupil relationship as related to the self-concept, need achievement, and internal locus of control of lower-class children. *Dissertation Abstracts International*, 1967, *27*(11), 3759A.

Kohn, P. M. Relationships between expectations of teachers and performance of students. *The Journal of School Health*, 1973, *43*(8), 498-503.

Koura, H. S. An experimental study of students' achievement in relation to the morale of selected school teachers. *Dissertation Abstracts International*, 1963, *24*(2), 645A.

Kowatrakul, S. Some behaviors of elementary school children related to classroom activities and subject areas. *Journal of Educational Psychology*, 1959, *50*(3), 121-128.

Kroder, T. C. The coping functions of the ego mechanisms. In R. W. White (Ed.) The study of lives: Effect on personality in Honor of Henry A. Murray. New York: Atherton Press, 1963.

Lahaderne, H. M. Adaption to school settings. A study of children's attitudes and classroom behavior. Final report. Report no. BR-6-8171, Illinois: University of Chicago, 1967. (ERIC ED 012 943)

Latta, M. R. The influence of achievement motivation, success, and intended effort on behavioral intensity. Paper presented at the annual meeting of the Midwestern Psychological Association, Chicago, 1974. (ERIC ED 095 461)

Lazarus, R. S., Baker, R. W., Broverman, D. M., & Mayer, J. Personality and psychological stress. *Journal of Personality*, 1957, *25*, 559-577.

Lewis, G. M. Interpersonal relations and school achievement. *Children*, 1964, *2*(6), 235-236.

Lewis, L. M. The relationship of achievement to reported self-concept and behavior ratings by teachers. *Dissertation Abstracts International*, 1971, *32*(1), 245A.

Linton, T. H. A study of the relationship of global self-concept, academic self-concept, and academic achievement among Anglo and Mexican-American sixth grade students. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago: 1972. (ERIC ED 063 053

Lortie, D. C. Observations on teaching as work, In Travers (Ed.) Second Handbook of Research in Teaching. Chicago: Rand McNally and Co., 1973.

Manning, B. A. Interpersonal interaction: A selective review. The University of Texas at Austin. The Research and Development Center for Teacher Education.

Manske, A. J. 1936.

Maw, W. H., & Maw, E. W. Self-concepts of high and low curiosity boys. Child Development, 1970, 41(1), 123-129. (ERIC ED 019 005.)

McCallon, E. L. Selected teacher characteristics and self-ideal self concepts of fifth and sixth grade children. Dissertation Abstracts International, 1965, 26(2), 871-872A.

Measel, W., & Mood, D. W. Teacher verbal behavior and teacher and pupil thinking in elementary school. The Journal of Educational Research, 1972, 66(3), 99-102.

Mech, E. V. Achievement motivation patterns among low-income Anglo-American and Negro youth. Paper presented at the American Psychological Association annual meeting, Honolulu, Hawaii, September, 1972.

Mellinger, G. D., & Manheimer, D. I. An exposure-coping model of accident liability among children. Journal of Health and Social Behavior, 1967, 8(2), 96-106.

Murray, H. B., & Staebler, B. K. Effects of teacher-student locus of control on intellectual achievement. Proceding of the 81st Annual convention of the American Psychological Association, 1973, 18(pt. 2), 697-698.

Neale, D. C., Gill, N., & Tismer, W. Relationship between attitudes toward school subjects and school achievement. The Journal of Educational Research, 1970, 63(5), 232-237.

Oner, N. P. Impact of teacher behavior and teaching technique on learning by anxious children. 1971.

Pavlovich, N. S. Cognitive types of teachers and pupils in relation to classroom interaction. *Dissertation Abstracts International*, 1971, *32*(2), 797a.

Peck, R. F. Coping styles: A conceptualization of effective human behavior, in R. Dias-Guerrero (Chm.), *Dimensions in Cross-Cultural Research*.

Peck, R. F. Coping styles: A conceptualization of effective human behavior, In *Proceedings of the IXth InterAmerican Congress of Psychology*, 1967, *1*(9).

Peck, R. F. (Principal investigator) Coping styles and achievement: A cross-national study of school children. (4 vols.) Austin: University of Texas, Research and Development Center for Teacher Education, 1972-1976. (ERIC ED Nos. 065 825; 067 607; 092 835; 078 342)

Peck, R. F. Measuring the mental health of normal adults. *Genetic Psychology Monographs*, 1959, *60*, 187-255.

Peck, R. F., & Tucker, J. A. Research on teacher education. In Travers (Ed.)

Peisach, E. C. Children's comprehension of teacher and peer speech, *Child Development*. 1965, *36*(2), 467-480.

Peng, S. S. Teacher, class-expectations, instructional behaviors and pupil achievement. Paper presented at the annual meeting of the American Educational Research Association, Chicago: 1974. (ERIC ED 088 833)

Perkins, H. V. A procedure for assessing the classroom behavior of the students and teachers. *American Educational Research Journal*, 1964, *1*(4), 249-260.

Perkins, H. V. Classroom behavior and underachievement. *American Educational Research Journal*, 1965, *2*(1), 1-12.

Potter, D. The relation of student achievement and student ratings of teachers. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans: 1973. (ERIC ED 090 139)

Prekeges, D. P. Relationship between selected teacher variables and growth in arithmetic in grades four, five, and six. Final Report. 1973.

Purkey, W. W. The self and academic achievement. Gainsville, Florida: University of Florida: University of Florida, 1967. (ERIC ED 026 681)

Reimanis, G. Teacher-pupil interaction and achievement striving in the kindergarten. *Psychology in the Schools*, 1970, *7*(2), 179-183.

Remmers, H. H., & Gage N. L. *Educational Measurement and Evaluation*. New York: Harper and Brothers, 1955

Richardson, S. The teacher's influence upon the learner's self concept. In Claremont College Reading Conference 32nd Yearbook, edited by M. P. Douglas, 1968, 108-113.

Riedesel, C. A., & Burns, P. C. Research on the teaching of elementary-school mathematics. In Travers (Ed.) Second Handbook of Research in Teaching.

Ripple, R. E. Affective factors influence classroom learning. Educational Leadership, 1965, 22(7), 476-480.

Rosenshine, B. Enthusiastic teaching: A research review. School Review, 1970, 78(4), 499-514.

Rosenshine, B. Interpretive study of teaching behaviors related to student achievement. Final Report. OEC-2-9-480010-1016, 1970.

Rosenshine, B., & Furst, N. The use of direct observation to study teaching. In. R.M.W. Travers (Ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally & Co., 1973, 155-159.

Rosenthal, R. The Pygmalion effect lives. Psychology Today, 1973, 7(4), 56-63.

Rosenthal, R., & Jacobson, L. Teachers' expectancies: Determinants of pupils IQ gains. Psychological Reports, 1966, 19, 115-118.

Rowland, T. S. Mother-son interaction and the coping behavior of young boys. Dissertation Abstracts International, 1969, 30(1-B), 389-390.

Sarason, S. B., Davidson, K., Lighthall, F., & Waite, R. Rorschach behavior and performance of high and low anxious children. Child Development, 1958, 29(2), 277-285.

St. John, N. Thirty-six teachers: their characteristics and outcome for Black and White pupils. American Educational Research Journal, 1971, 8(4), 635-648.

Schwartz, E. A study of self esteem of elementary school students in two socio-economic groups, as measured by the self report of the students and as perceived by their teachers. Dissertation Abstracts International, 1971, 32(4), 2196A.

Sears, P. S., & Feldman, D. H. Teachers' interactions with boys and with girls. Report Number BR-5-0252-1, 1966. (ERIC ED 011 935.)

Sember, I. J. Relationships among several measures of pupil adjustment. Journal of Educational Psychology, 1960, 51(2), 60-64.

Share, J. H. The relationship of middle-class elementary school students' internal control to intelligence, achievement, self-concept, and teachers ratings. Dissertation Abstracts International, 1973, 33(7), 3406A.

Siddle, A., Moos, R., Adams, J., & Cady, P. Development of a coping scale: A preliminary study. *Archives of General Psychiatry*, 1969, *20*(2), 226-232.

Silverstein, B., & Krate, R. *Children of the Dark Ghetto: A development psychology*. New York: Prager Publishers, 1975.

Soar, R. S. Optimum teacher-pupil interaction for pupil growth. *Educational Leadership Research Supplement*, 1968, *1*, 275-280.

Soar, R. S. The classroom: Teacher-pupil interaction. In J. S. Squire (ed.), A new look at progressive education; yearbook, 1972. Washington, D. C.: Association for Supervision and Counselor Development, 1972.

Soar, R. S. *Follow Through: Classroom process measurement and pupil growth (1970-71) final report*. Gainesville, Florida: University of Florida Institute for the Development of Human Resources, 1973. (ERIC Ed 106 297)

Soar, R. S., & Soar, R. M. Classroom behavior, pupil characteristics and pupil growth for the school year and for the summer. Gainesville, Florida: University of Florida Institute for the Development of Human Resources, 1973. JSAS *Catalog of Selected Documents in Psychology*, 1975, *5*, 200. (Ms. No. 873)

Spaulding, R. L. What teacher attributes bring out the best in gifted children? *The Gifted Child Quarterly*, 1963, *7*(4), 150-156.

Srole, L., Langner, T. S., Michael, S. T., Oplor, M. K., & Rennie, T. A. C. *Mental health in the metropolis: The midtown Manhattan study*. New York: McGraw Hill, 1962.

Standt, R. S. Some relationships between students' socialized anxiety and their perceptions of teachers' behavior. *Dissertation Abstracts International*, 1967, *27*(10-A), 3325.

Tanner, L. N., & Lingren, H. C. *Classroom teaching and learning*. New York: Holt, Rinehart, and Winston, Inc., 1971.

Tenenbaum, S. Attitudes of elementary school children to school teachers and classmates. *Journal of Applied Psychology*, 1944, *28*(2), 134-141.

Thomas, C. D., Jr. A study of teacher-pupil attitudes and the impact such relationships have on academic proficiency. 1972.

Thomas, D. A., Becker, W. C., & Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher behavior. *Journal of Applied Behavior Analysis*, 1968, *1*, 35-45.

Todd, F. J., Terrell, G., & Frank, C. E. Differences between normal and underachievers of superior ability. Journal of Applied Psychology, 1962, 46(3), 183-190.

Torrance, E. P. Characteristics of mathematics teachers that affect students' learning. 1966.

Travers, K. J. Non-intellective correlates of under and overachievement in grades 4 and 6. (MLSMA Report No. 19). 1971.

Travers, R. M. W. (Ed.) Second Handbook of Research in Teaching. Chicago: Rand McNally and Co., 1973.

Trowbridge, T. Relationship between self concept, school performance, and divergent thinking. Final Report. Grant No. OEC-6-70-0020. Des Moines, Iowa: Drake University, 1971. (ERIC ED 059 516.)

Trowbridge, N. Self concept and socio-economic status in elementary school children. American Educational Research Journal, 1972, 9(4), 525-537.

Van de Walle, J. A. Attitudes and perceptions of elementary mathematics possessed by third and sixth grade teachers as related to student attitude and achievement in mathematics. Paper presented at the Annual Meeting of the National Council of Teachers of Mathematics, Houston, Texas, 1973. (ERIC ED 076 425)

Waterman, A. D., Northrop, G. W., & Olsen, L. D. Motivation and achievement in the elementary school. The Elementary School Journal, 1967, 6[illegible](7),

Wayne, O. Anxiety and motivation as factors in inhibitory potential. OEC-5-10-154. Madison: Wisconsin University, 1966. (ERIC ED 011 945.)

Webb, P. L. A study of selected teacher characteristics and situational phenomena as they relate to pupil marks. Dissertation Abstracts International, 1970, 30(8), 3262-3263A.

Weyl, T. C. The development and evaluation of a new inventory of coping styles. Dissertation Abstracts International, 1972, 32(10-B), 6065.

White, K., & Howard, J. L. Failure to be promoted and self concept among elementary school children. Elementary School Guidance and Counseling, 1973, 7(3), 182-187.

Withall, J., & Lewiss, W. W. Social interaction in the classroom. In Gage, N. L. (Ed.)

White, W. F. *Psychosocial principles applied to classroom teaching*. New York: McGraw-Hill, 1969.

Wlodkowski, R. J. The effect of dissonance and arousal on assignment performance as it relates to student expectancy and teacher support characteristics. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, 1972.

Wodtke, K. H., & Wallen, N. E. Teacher classroom control, pupil creativity, and pupil classroom behavior. *The Journal of Experimental Education*, 1965, *34*(1), 59-65.

Wood, R. H. Three environmental press variables and their relationship to coping behavior and creativity in children. *Dissertation Abstracts International*, 1970, *30*(12-AO), 5306-5307.

Zimmerman, B. J. The relationship between teacher classroom behavior and student school anxiety levels. *Psychology in the Schools*, 1970, *7*(1), 89-93.

Zodikoff, D. H. A study of certain categories of social attitudes of fourth, fifth, and sixth grade pupils. 1967.

ABSTRACT

Figure I summarizes the design and some overall findings from this study. The study tested the separate and interactive effects of teacher and student entry characteristics on their subsequent classroom behavior, and the effect of that behavior on students' regressed gain, over a school year, in achievement, attitudes toward school, self-esteem, and coping skills. Fifty-three tri-ethnic sixth-grade classes were studied in the first year, in Austin, Texas, comprising about 1,500 students. Forty-three classes were studied the next year, 33 of them with teachers who had participated in the first year; about 1,200 new students were involved. A second replication sample of 27 fourth to seventh grade classes, with about 700 students, was studied in Daviess County, Kentucky. Highly reliable methods were found, or developed, to assess teacher behavior, student behavior, and students' evaluation of the direct impact on them of a particular teacher. Individual teaching behavior, assessed by Ryans' rating system, proved to be consistent over time, over different classes, and in successive years (coefficients of similarity ranged from .53 to .78 on different aspects of teaching). Very substantial pre-test to post-test correlations demonstrated the stability of students' individual characteristics over the year, on all measures. A complex sequence of multiple linear regressions, with covariates and with quadratic and interaction terms, was used to test the hypothesized linkages between the teacher and student measures taken at entry, during the year, and at the end of the year. The data were subjected to both between-class and within-class analysis.

As Figure I indicates, teacher age and experience showed either no relationship or a negative relationship to the measures of teaching effectiveness. Teachers' self-rated personal traits did not predict teacher or student classroom behavior, although they did show some significant effects on student outcomes. Students' SES, ethnicity, and pre-test status showed substantial effects on student outcomes, often in a curvilinear way and often with reciprocal interactions (e.g., high entering achievement fostered gain in self-esteem, and vice-versa). Observer-rated teacher behavior had strong effects on students' evaluation of the teacher, and of his or her impact on them. Teacher behavior also showed effects on student time-on-task behavior, and on student outcomes. The effects were frequently curvilinear, however, indicating that not all students were affected, or not to the same degree. Moreover, the same effects did not appear in all samples, due to differences in the student bodies, the effect of unmeasured factors, the imperfect reliability or relevance of the mass-administrable student measures, and doubtless other, unidentified factors. Furthermore, there was a substantial number of interaction effects, where a given kind of teaching behavior had different effects on different kinds of students. Thus, while a majority of students may have reacted in a predictable way to a particular style of teaching, some students reacted in a different, even opposite manner. This was especially true of very low-achieving, low SES, minority students, and of very high-achieving, high status students. In short, almost no general prescriptions could be justified for instructing all students.

The findings suggest that particular sub-groups of students need to be looked at afresh, each year, and their responsiveness to instruction alertly monitored. No affordable mass assessment system is in sight that can replace teachers with good judgment who can flexibly adapt instruction to meet the intellectual and emotional needs of different students. Some widely held assumptions about effective teaching strategies did prove valid much of the time, with a majority of students; but there were many exceptions, usually involving small groups of students.

Students, as a group, were quite reliable judges of one another's academic and personal coping skills, and they proved quite objective in assessing teacher behavior. Systematic use of student assessments is probably the most economical, valid, single way of estimating the nature and effects of teaching behavior. Feedback of such data was spontaneously used by some teachers in this study to improve their teaching, even though no systematic effort was made to foster change. Experienced teachers, acting as independent observers, also achieved highly reliable, substantially valid estimates of teaching effectiveness.